KS-20571 RECORDER

PIECE-PART DATA AND REPLACEMENT PROCEDURES

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1. GENERAL

1.01 This section covers information necessary for ordering replacement parts used in the maintenance of the KS-20571, L1, L2, and L3, recorders. The section also covers approved procedures for replacing these parts.

1.02 Revision arrows are used to emphasize the more significant changes. The Equipment Test List is not affected. The reasons for reissuing this section are listed below.

(a) To provide more complete identification and ordering information for piece parts and assemblies.

(b) To add Table B listing all available items and comcode numbers.

1.03 For field maintenance, in addition to mounting hardware, replace only those piece parts listed in Table C or shown in Fig. 1 through 14.

1.04 Part 2 and 3 identify those items that may be replaced in the field and describe the approved procedures for replacing them. No attempt will be made in the field to replace parts not designated.

1.05 ***Associated References:*** The following references are required for use with this section.

SECTION	TITLE
034-369-701	Recorder, KS-20571, Requirements and Adjusting Procedures
034-369-802	Rectifier, KS-20573, Piece-Part Data and Replacement Procedures

1.06 The components of KS-20571, L101 and L103, kits of spare parts and special tools are listed in Table A. These kits are available but not supplied with the KS-20571 recorder. One KS-20571, L101, kit is recommended for each office using the L1 or L2 recorder. The L103 kit is similarly recommended for the L3 application [Programmed Magnetic Tape System (PROMATS)].

2. PIECE-PART DATA

2.01 When ordering replacement parts, specify a KS-20571 list number (if assigned), comcode number, and the description of the part. (See Table B.) If the comcode number is not identified, use the piece-part number and manufacturer (if available) and specify that the part is for use on the KS-20571, L1, L2, or L3, tape transport. The following examples illustrate the proper way for ordering replacement parts.

Example 1: Sensor Assembly, KS-20571, L201, 401871082

Example 2: Lee Spring Company, Inc.
Brooklyn, New York
Part Number LE-055E-12-MW,
Extension Spring (for use on KS-20571, L2, tape transport)

Do not refer to this section number or to any information shown in parentheses in the illustrations.

2.02 Information enclosed in parentheses is not ordering information. This information may be references to notes, information pertaining to parts not considered replaceable, or part names in general field use if the names differ from those assigned to the manufacturer.

2.03 Table C lists the figures on which ordering information for all replaceable parts are shown. Reference is also given for replacement procedures provided in Part 3.

TABLE A

KS-20571, L101 AND L103, KIT OF SPARE PARTS AND SPECIAL TOOLS

PIECE-PART NO.	DESCRIPTION	QUANTITY
L-502512	Switch Bracket Assembly (Door Interlock)	1
L-502545	CP15 Power Supply Switch	1
L-502548	CP14 Capstan Amplifier Assembly	1
L-502550	Heat Sink Assembly	1
L-502562	Write Enable Assembly	1
L-502580	Arm Tape Guide Assembly	2
L-502581	Precision Guide Assembly	1
L-502582-1	Tape Guide Assembly	2
L-502582-2	Tape Guide Assembly	1
L-502600-1*	CP1 Master Logic Assembly	1
L-502600-2†	CP1 Master Logic Assembly	1
L-502601	CP2 Capstan Reference Assembly	1
L-502602	CP3 Capstan Servo Assembly	1
L-502603	CP4 Reel Amplifier Assembly	1
L-502604	CP5 Reel Servo Assembly	1
L-502605	CP6 EOT/BOT Logic Assembly ‡	1
L-502606	CP7 Lamp Driver	1
L-502607	CP8 Status Logic Assembly	1
L-502608-1*	CP9 Voltage Diagnostic Assembly	1
L-502608-2†	CP9 Voltage Diagnostic Assembly	1
L-502609	CP10 Capstan Diagnostic Assembly	1
L-502610	CP11 Capstan Diagnostic Assembly	1
L-502611	CP12 Lamp Servo Assembly	1
L-502613	Resistor Assembly	1
L-502624	Roller	2
L-502679	Heat Sink Assembly	1
L-502681	Printed Wiring Board Assembly (Board Extender)	1
GE 381 (General Electric Co)	Light Bulb	5
LE-055E-12 (Lee Spring Co)	Extension Spring	1
2-1820 (Indiana General Corp)	Brushes—Reel Motor	4
0002-6800-1 (Electorcraft Corp)	Brushes—Capstan Motor	2

* L101 Kit only.

† L103 Kit only.

‡End-of-Tape/Beginning of Tape (EOT/BOT)

TABLE B

LIST NUMBERS AND COMCODE NUMBERS FOR PIECE PARTS AND ASSEMBLIES USED ON THE KS-20571 TAPE TRANSPORT

PIECE-PART NUMBER	DESCRIPTION	KS-20571 LIST NO.	COMCODE NUMBER
L-502503	Front Cover	*	401871074
L-502507-1	Cover Pane	*	401871785
L-502507-2	Cover Pane	*	401871793
L-502508	Cover Hinge	*	401871678
L-502512	Bracket Switch Assembly	*	401872049
L-502516	Transport Hinge	*	401871686
L-502517	Sensor Assembly	201	401871082
L-502524	Sensor Assembly	202	401871090
L-502525-1	Cam Assembly	*	401871108
L-502525-2	Cam Assembly	*	401871116
L-502528	Arm Assembly	*	401871124
L-502530	Arm Assembly	*	401871132
L-502534	Precision Plate Assembly	203	401871363
L-502536	Shield Pin	*	401871884
L-502537	Tape Cleaner	*	401871561
L-502538	Tape Cleaner Block	*	401871413
L-502540	Sensor Assembly	204	401871140
L-502545	CP15 Power Switch Assembly	205	401872056
L-502548	CP14 Capstan Amplifier Assembly	206	401871157
L-502550	Heat Sink Assembly	207	401871165
L-502553	CA4 Cable Assembly	*	401871330
L-502554	Reel Motor Assembly	208	401871173
L-502558	Capstan Motor Assembly	209	401871181
L-502562	Write Enable Assembly	210	401871199
L-502566	Relay Assembly	211	401871371
L-502568	Switch Assembly	212	401872064
L-502570	Switch Assembly	213	401872072
L-502572	Upper Support Assembly	*	401871397
L-502573	Lower Support Assembly	*	401871405
L-502574	Magnetic Brake (W/Lugs)	*	401871462
L-502577	CA3 Cable Assembly	*	401871348
L-502580	Arm Tape Guide Assembly	214	401871603
L-502581	Precision Tape Guide	215	401871611
L-502582-1	Tape Guide Assembly	216	401872106
L-502582-2	Tape Guide Assembly	217	401872114
L-502599	Shield	*	401871892
L-502600-1	CP1 Master Logic Assembly	218	401871207
L-502600-2	CP1 Master Logic Assembly	219	*
L-502601-1	CP2 Capstan Reference Assembly	220	401871215
L-502602-1	CP3 Capstan Servo Assembly	221	401871223
L-502603	CP4 Reel Amplifier Assembly	222	401871231
L-502604	CP5 Reel Servo Assembly	223	401871249
L-502605	CP6 EOT/BOT Logic Assembly	224	401871256

*Indicates list number (or comcode number) is unassigned.

TABLE B (Contd)

LIST NUMBERS AND COMCODE NUMBERS FOR PIECE PARTS AND ASSEMBLIES USED ON THE KS-20571 TAPE TRANSPORT

PIECE-PART NUMBER	DESCRIPTION	KS-20571 LIST NO.	COMCODE NUMBER
L-502606	CP7 Lamp Driver Assembly	225	401871355
L-502607	CP8 Status Logic Assembly	226	401871264
L-502608-1	CP9 Voltage Diagnostic Assembly	227	401872122
L-502608-2	CP9 Voltage Diagnostic Assembly	228	*
L-502609-1	CP10 Capstan Diagnostic Assembly	229	401871272
L-502610-1	CP11 Capstan Diagnostic Assembly	230	401871280
L-502611	CP12 Lamp Servo Assembly	231	401871769
L-502613	Resistor Assembly	*	401871389
L-502614	Solenoid Assembly	232	401871298
L-502617	Brake Switch	*	401872031
L-502620	Plate	*	401871819
L-502621	Screw	*	401871876
L-502622	Pivot	*	401871801
L-502623	Cam Fork	*	401871636
L-502624	Roller	*	401871868
L-502625	Spring Holder	*	401871694
L-502626	Plunger	*	401871835
L-502628-1	Connector Bracket	*	401871447
L-502628-2	Connector Bracket	*	401871454
L-502630	Solenoid Stop	*	401871934
L-502633	Right Hand Mounting Strip	*	401871942
L-502634	Right Hand Mounting Strip	*	401871959
L-502640	Friction Washer	*	401872098
L-502642	Power Supply Cover	*	401871595
L-502645	Bracket Assembly	*	401871322
L-502647	Power Cord	*	401871587
L-502649	Striker Plate	*	401871827
L-502668	Left Hand Mounting Strip	*	401871967
L-502669	Left Hand Mounting Strip	*	401871975
L-502671	Right Hand Slide	*	401871900
L-502672	Left Hand Slide	*	401871918
L-502673	Reflector	*	401871850
L-502679	Heat Sink Assembly	233	401871306
L-502681	Printed Wiring Board Assembly	234	401871314
L-502922	Reel Holder	*	401871702
L-510594	Latch Assembly	*	402025449
2-1820†	Reel Motor Brushes	235	401871470
0002-6800-1‡	Capstan Motor Brushes	236	401871488

*Indicates list number (or comcode number) is unassigned.
†Indicates Indiana General Corporation part number.
‡Indicates Electrocraft Corporation part number.

TABLE C

PIECE PART REPLACEMENT PROCEDURES AND ORDERING INFORMATION FOR THE KS-20571 TAPE TRANSPORT

PART	ORDERING INFORMATION FIG. NO.	REPLACEMENT PROCEDURES (COVERED IN PART 3)
DUST COVER ASSEMBLY AND ASSOCIATED PARTS		
Front Cover Assembly	1	3.06(a)
Cover Panes	1	3.06(b)
Latch Assembly	1	
Latch, Pin, Spring, and Bracket	1	
Striker	2	
Hinges	2	
Friction Washer	7	
Cover Retainers	5, 7	
Gasket	2, 5	
Back Cover Plate	5, 14	
Power Supply Cover Assembly	1, 6	
Hinges and Components	7	
Power Supply Rack Components	7	
Spring and Striker Plate	6,7	
Bar Handle	7	
Bracket	7	
REEL DRIVE MOTOR ASSEMBLY AND ASSOCIATED PARTS		
Reel Motor Assembly	10	3.07
Brushes	10	
Reel Motor Assembly Brakes	10	3.08
Printed Circuit Boards	10	
Reel Holder	8	3.07
Knob	8	
Base	8	
Fingers	8	
Knob Screw	8	

TABLE C (Contd)

PIECE PART REPLACEMENT PROCEDURES AND ORDERING INFORMATION FOR THE KS-20571 TAPE TRANSPORT

PART	ORDERING INFORMATION FIG. NO.	REPLACEMENT PROCEDURES (COVERED IN PART 3)
CAPSTAN MOTOR ASSEMBLY AND ASSOCIATED PARTS		
Capstan Motor Assembly	6	3.09
Brushes	6	
Capstan Assembly	2	
Capstan Mounting Plate	6	
Printed Circuit Boards	10	
Capstan Servo Assembly (CP14)	10	3.10
PRECISION PLATE ASSEMBLY AND ASSOCIATED COMPONENTS		
Precision Plate Assembly	3, 4	3.11(a)
Write Head	3, 4	3.11(b)
Read Head	3, 4	3.11(c)
Erase Head	3, 4	3.11(d)
Tape Cleaner	3, 4	3.11(e)
EOT/BOT Sensor Assembly	3, 4	3.11(f)
Reflector	3, 4	3.11(g)
Shield and Components	3, 4	3.11(h)
Plate	3, 4	
TAPE TENSION ARM SENSOR ASSEMBLY AND ASSOCIATED PARTS		
Tape Tension Arm Sensor Assembly	11, 12	3.12
Sensor Base Assembly	11, 12	
Connector	11, 12	
Spacer	11	
Terminal Lugs	11, 12	
Light Bulb (Lamp, GE 381)	11, 12	3.13
Light Guide Support	11, 12	

TABLE C (Contd)

PIECE PART REPLACEMENT PROCEDURES AND ORDERING INFORMATION FOR THE KS-20571 TAPE TRANSPORT

PART	ORDERING INFORMATION FIG. NO.	REPLACEMENT PROCEDURES (COVERED IN PART 3)
REEL MOTOR CONTROL MECHANISM, TAPE TENSION ARM ASSEMBLY, AND ASSOCIATED SERVO COMPONENTS		
Reel Motor Control Mechanism	13	3.14
Printed Circuit Boards	10	
Extension Spring	10	
Extension Spring Holder	13	
Cam Assembly	13	
Cam Fork	13	
Roller	13	
Tape Tension Arm Assembly	2, 13	3.15
Arm Tape Guide Assembly	2, 13	
Support Assembly	2	
Spring Washer	13	
Ball Bearing	13	3.16
Bearing Plate	13	
Solenoid Assembly	13	3.24
Heat Sink Assembly	10	3.17
Resistor Assembly (R2 and R5)	6	
Strain Relief Bushing	14	
Power Cord	7	
SWITCHES, SWITCH ASSEMBLY, SWITCH LAMP, AND SOLENOIDS		
Cover Door Interlock, S1	5	3.18
Plunge (Rod)	2	
Bracket	5	
Brake Release Switch, S16	2	3.19
Lamps (GE 387)	2	3.20
Connector Bracket	5	
Switch Assemblies (L-502568 and L-502570)	2, 5	3.21
Switch Casting	2	

TABLE C (Contd)

PIECE PART REPLACEMENT PROCEDURES AND ORDERING INFORMATION FOR THE KS-20571 TAPE TRANSPORT

PART	ORDERING INFORMATION FIG. NO.	REPLACEMENT PROCEDURES (COVERED IN PART 3)
SWITCHES, SWITCH ASSEMBLY, SWITCH LAMP, AND SOLENOIDS (Contd)		
Power Switch Assembly	6	3.22
Relay Assembly	5	3.23
Solenoid (L1 and L4)	13	3.24
Write Enable Assembly	9	3.28
Switch, S7	9	
Solenoid	9	
Prod	9	
MISCELLANEOUS		
Connectors	14	
Tape Guide Assemblies	2	3.25
Tape Tension Arm Bumper	2	3.26
Heat Sink Assembly (L-502679)	10	3.27
Transport		3.30
Transport Hinge and Washer	5, 7	
Pawl Fastener	2,7	
Resistors, Power (R2 and R5)	6	3.29
Recorder Mounting Strips (For TSPS and ETS, or 1A and 4 ESS Application)	14	

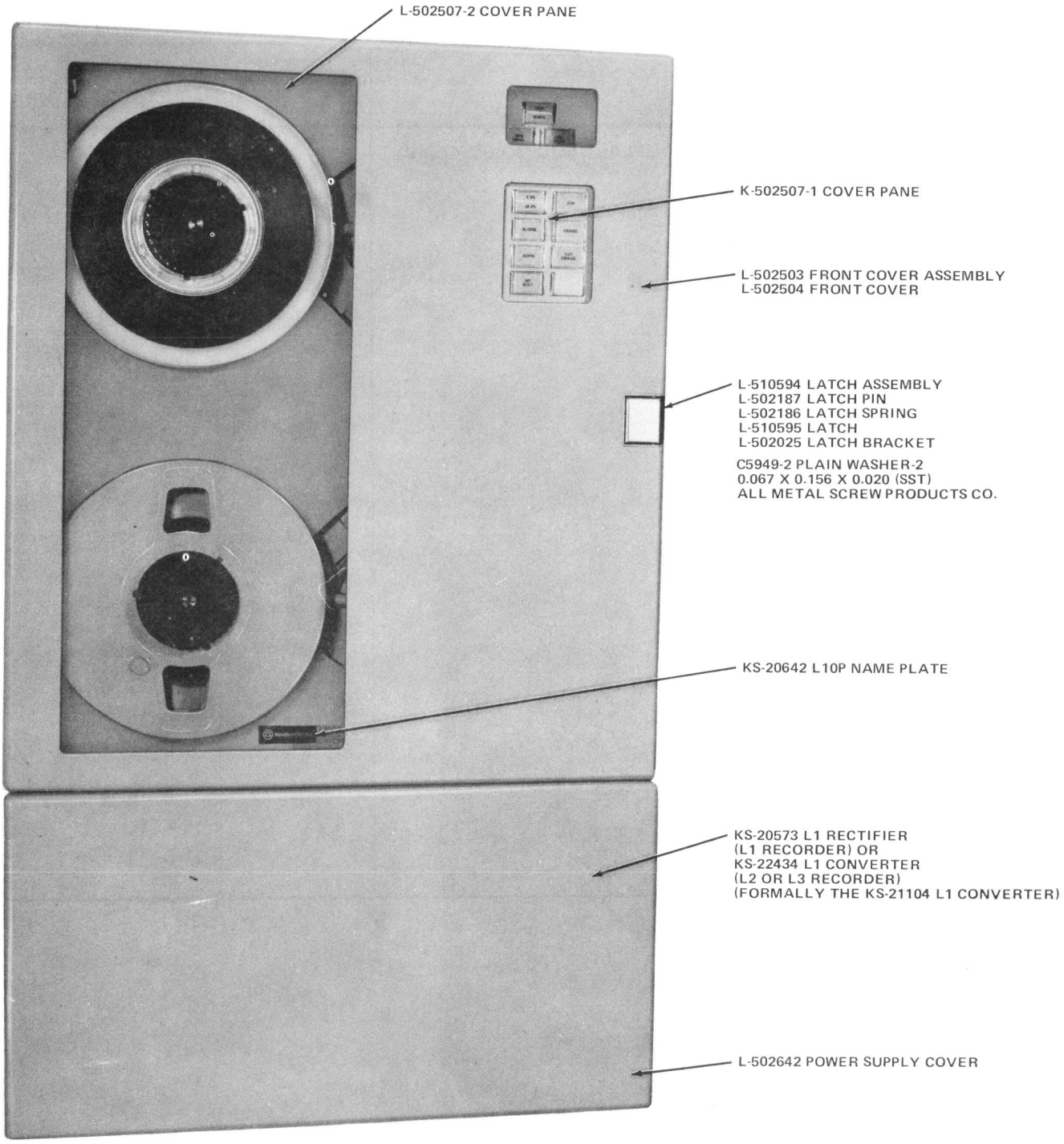


Fig. 1—KS-20571 Recorder and Associated Power Supply

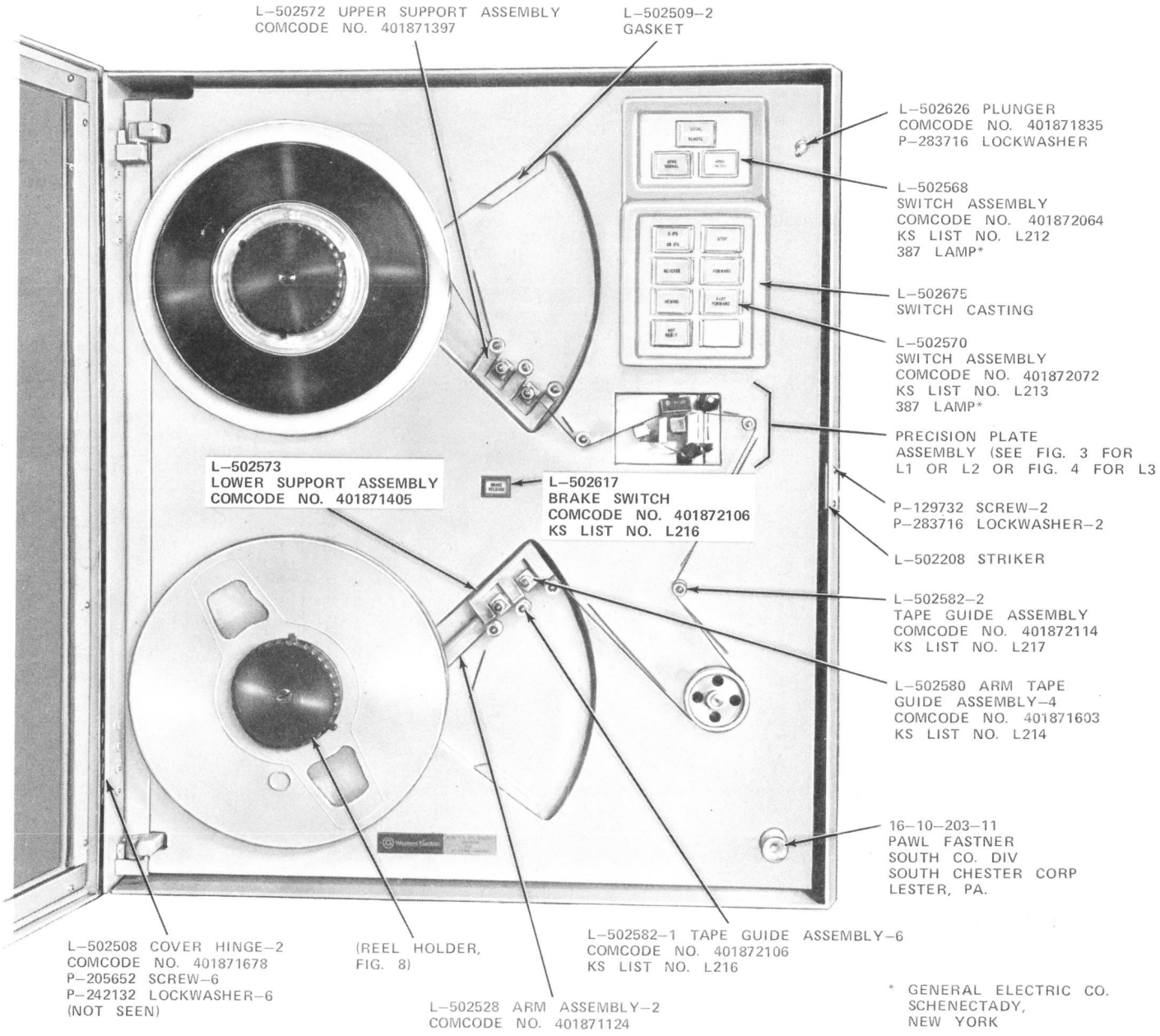


Fig. 2—KS-20571 Recorder—Front View With Dust Cover Door Open

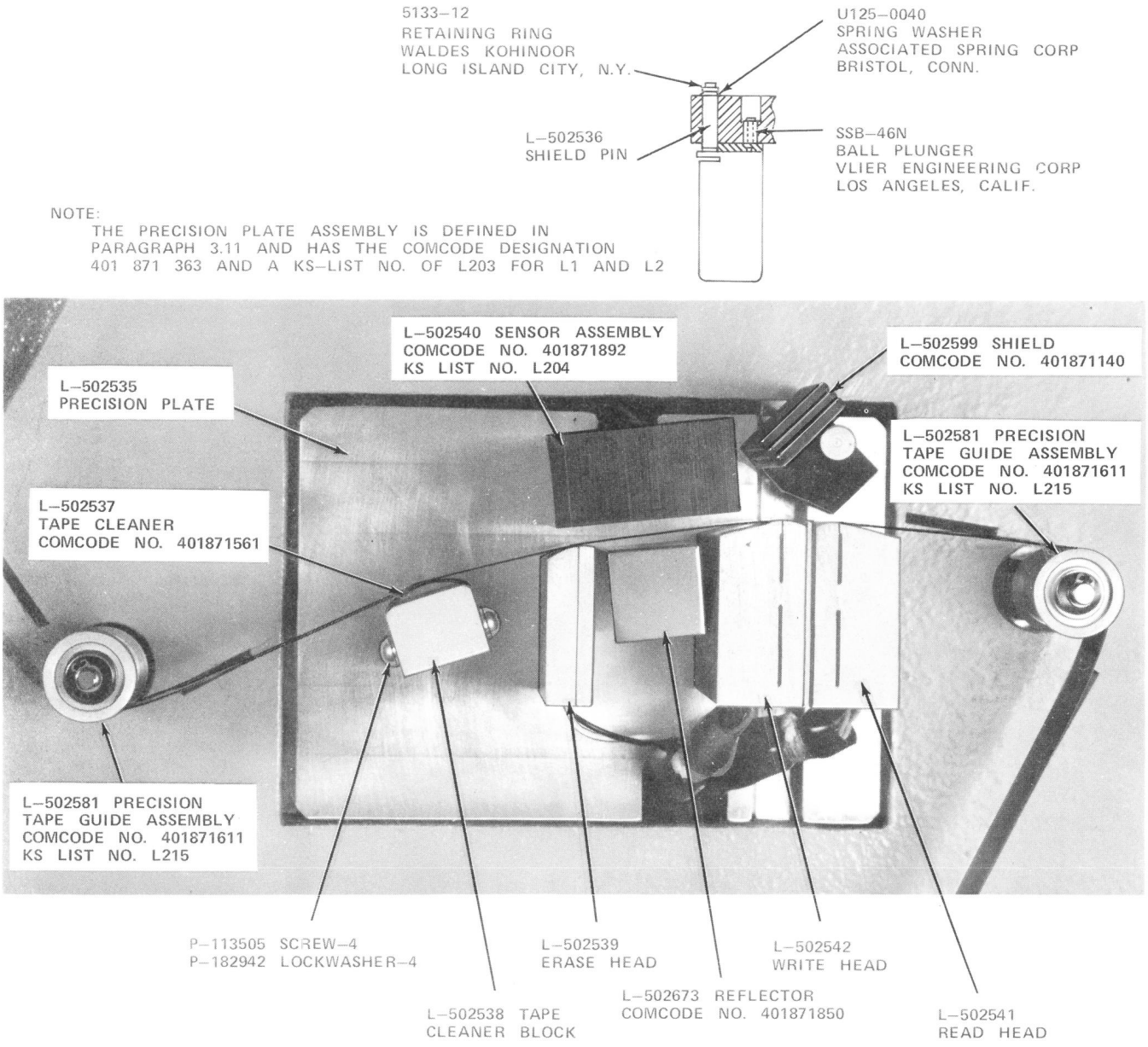


Fig. 3—Partial Front View of KS-20571, L1 or L2, Tape Transport Showing Tape Path Components

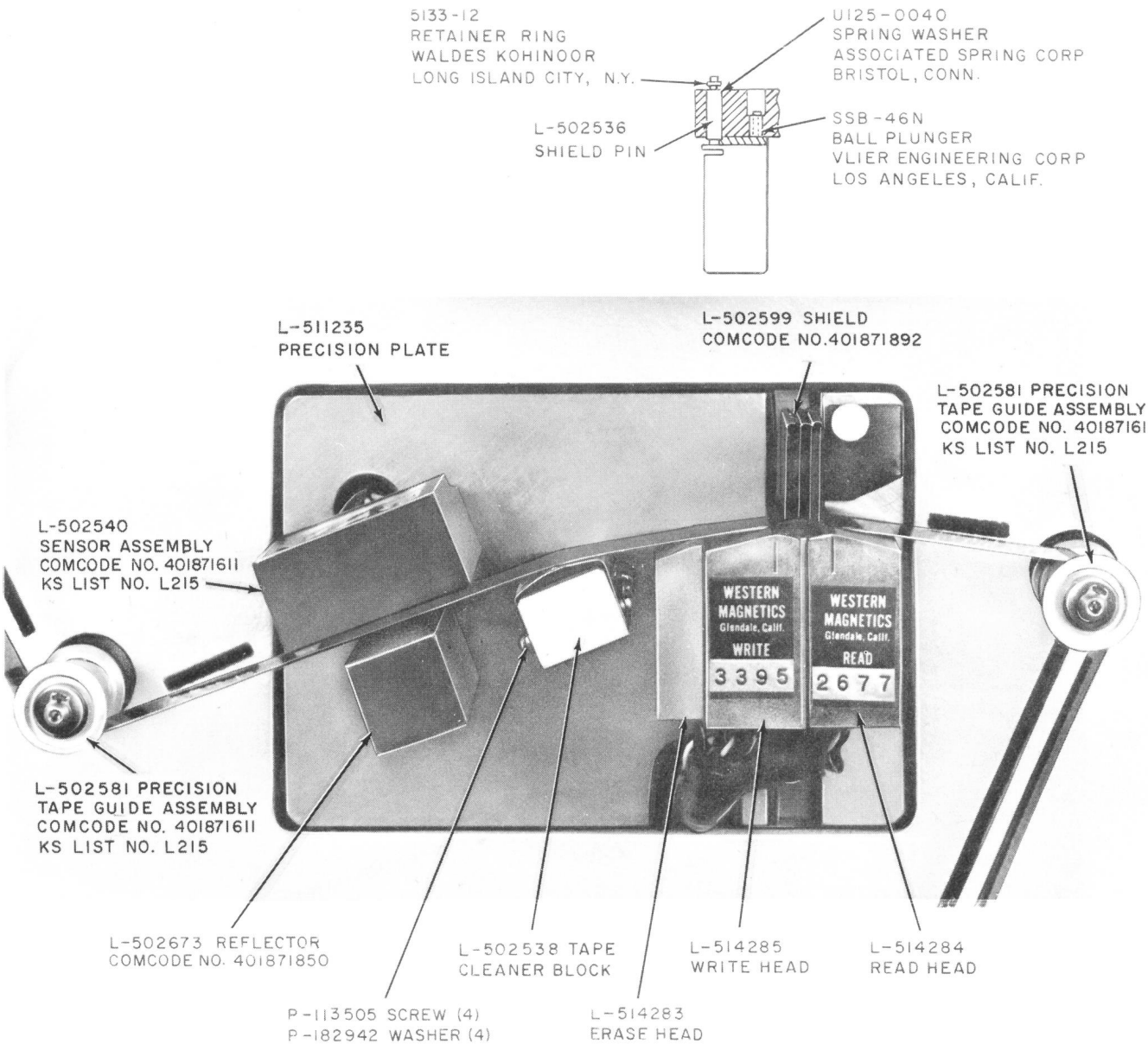


Fig. 4—Partial Front View of KS-20571, L3, Tape Transport Showing Tape Path Components

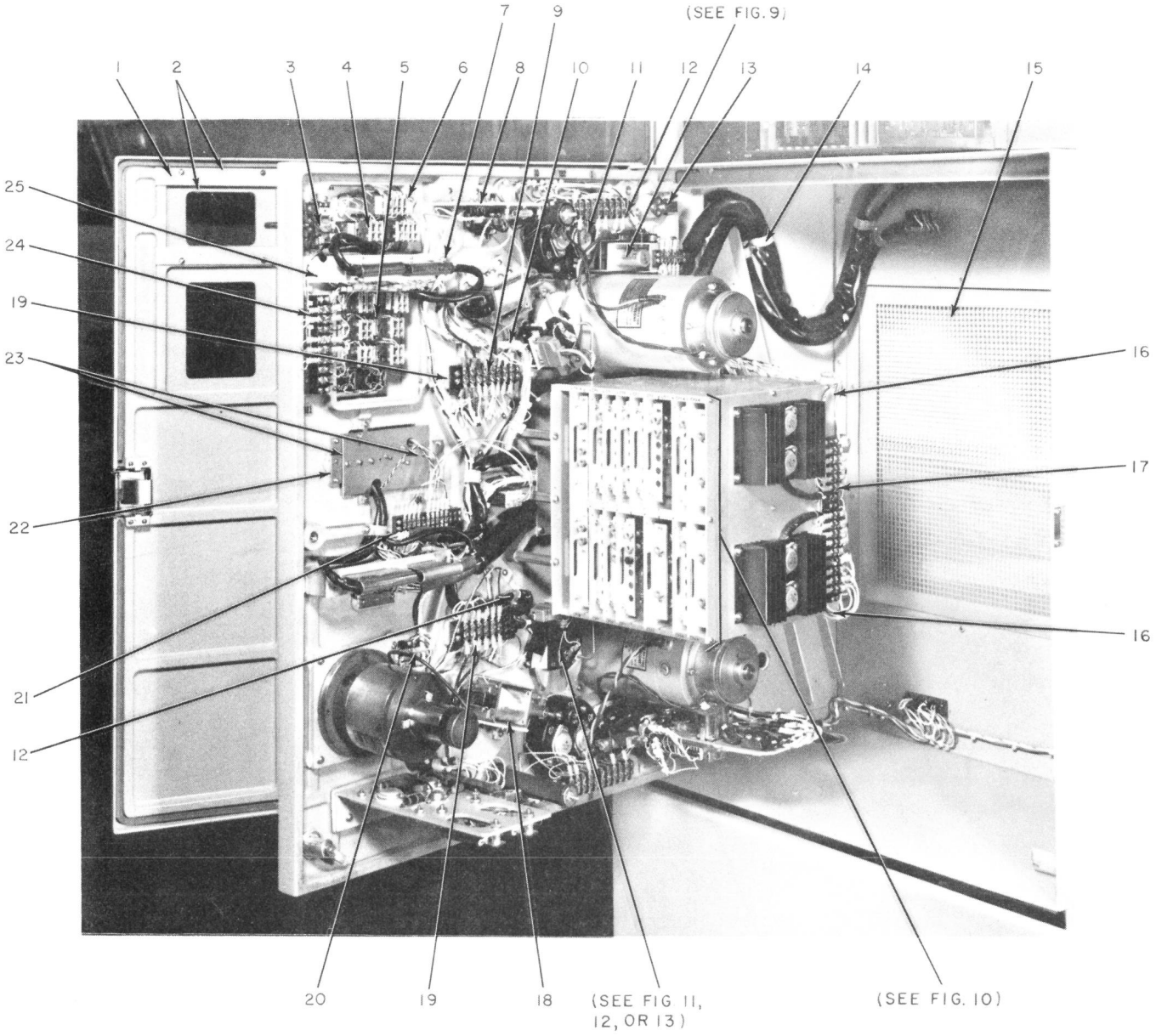


Fig. 5—Partial Rear View of Tape Transport (Sheet 1 of 3)

LEGEND

1. L-502511 Cover Retainer — 2
   P-124483 Screw — 4
   P-283716 Lockwasher — 4

2. L-502509-1 Gasket
   (Not seen under item 1)
   (Cement with X17049 L1 adhesive)

3. L-502512 Bracket Switch Assembly
   P-92619 Screw — 2
   P-283716 Lockwasher — 2

4. L-502568 Switch Assembly
   P-283344 Screw — 4
   P-387666 Lockwasher — 4
   P-284145 Plain Washer — 4

5. L-502570 Switch Assembly
   P-283344 Screw — 4
   P-387666 Lockwasher — 4
   P-284145 Plain Washer — 4

6. P-180929 Screw — 2
   P-387666 Lockwasher — 2

7. 5/16-4NA Cable Clamp
   Weckesser Company, Inc.
   Chicago, Illinois
   P-125043 Screw
   P-284145 Plain Washer

8. L-502566 Relay Assembly
   P-124483 Screw — 2
   P-283716 Lockwasher — 2

9. 600 RF Jumper
   Kulka Electronic Corporation
   Mount Vernon, New York
   BA16S6 Terminal Lug
   Brudy
   Norwalk, Connecticut

10. 7/16-4NA Cable Clamp
    Weckesser Company, Inc
    Chicago, Illinois
    P-125043 Screw
    P-284145 Plain Washer

11. L-502550 Heat Sink Assembly — 2

12. 1/4-4NA Cable Clamp
    Weckesser Company, Inc
    Chicago, Illinois
    P-125043 Screw
    P-284145 Plain Washer

13. L-502516 Transport Hinge
    P-386336 Screw — 4
    P-285080 Lockwasher — 4

14. 11/16-6NA (L1 or L2)
    1-1/8 6NA (L3)
    Cable Clamp
    Wechesser Company, Inc
    Chicago, Illinois
    P-125043 Screw
    P-284145 Plain Washer

15. L-502656 Back Cover Plate
    P-205650 Screw — 4
    P-206519 Screw — 8
    P-242132 Lockwasher — 12
    P-284148 Plain Washer — 8

16. 3/16-6NA Cable Clamp
    Weckesser Company, Inc
    Chicago, Illinois
    P-125043 Screw
    P-284145 Plain Washer

17. 670A-16 Terminal Board
    MS670-16 Marker Strip
    Kulka Electronic Corporation
    Mount Vernon, New York
    P-125949 Screw — 4
    P-283716 Lockwasher — 4

18. L-502614 Solenoid Assembly

Fig. 5—Partial Rear View of Tape Transport (Sheet 2 of 3)

LEGEND (Contd)

19. 670A-8 Terminal Board
MS670-8 Marker Strip
Kulka Electronic Corporation
Mount Vernon, New York
P-116659 Screw — 4
P-283716 Lockwasher — 4

20. 411-3/4-ST-4 Terminal Block
Kulka Electronic Corporation
Mount Vernon, New York
P-210813 Screw — 4
P-387666 Lockwasher — 4

21. 410-12 Terminal Board
MS410-12 Marker Strip
Kulka Electronic Corporation
Mount Vernon, New York
P-21083 Screw — 4
P-387666 Lockwasher — 4

22. L-502620 Plate — 2
P-210810 Screw — 4
P-387666 Lockwasher — 4

23. Z10-S4-A4-L BHM Screw
Winfred M. Berg, Inc
East Rockaway, New York

24. 600A-8 Terminal Board
MS600-8 Marker Strip
Kulka Electronic Corporation
Mount Vernon, New York
P-125949 Screw — 4
P-283716 Lockwasher — 4

25. L-502628 Connector Bracket

Fig. 5—Partial Rear View of Tape Transport (Sheet 3 of 3)

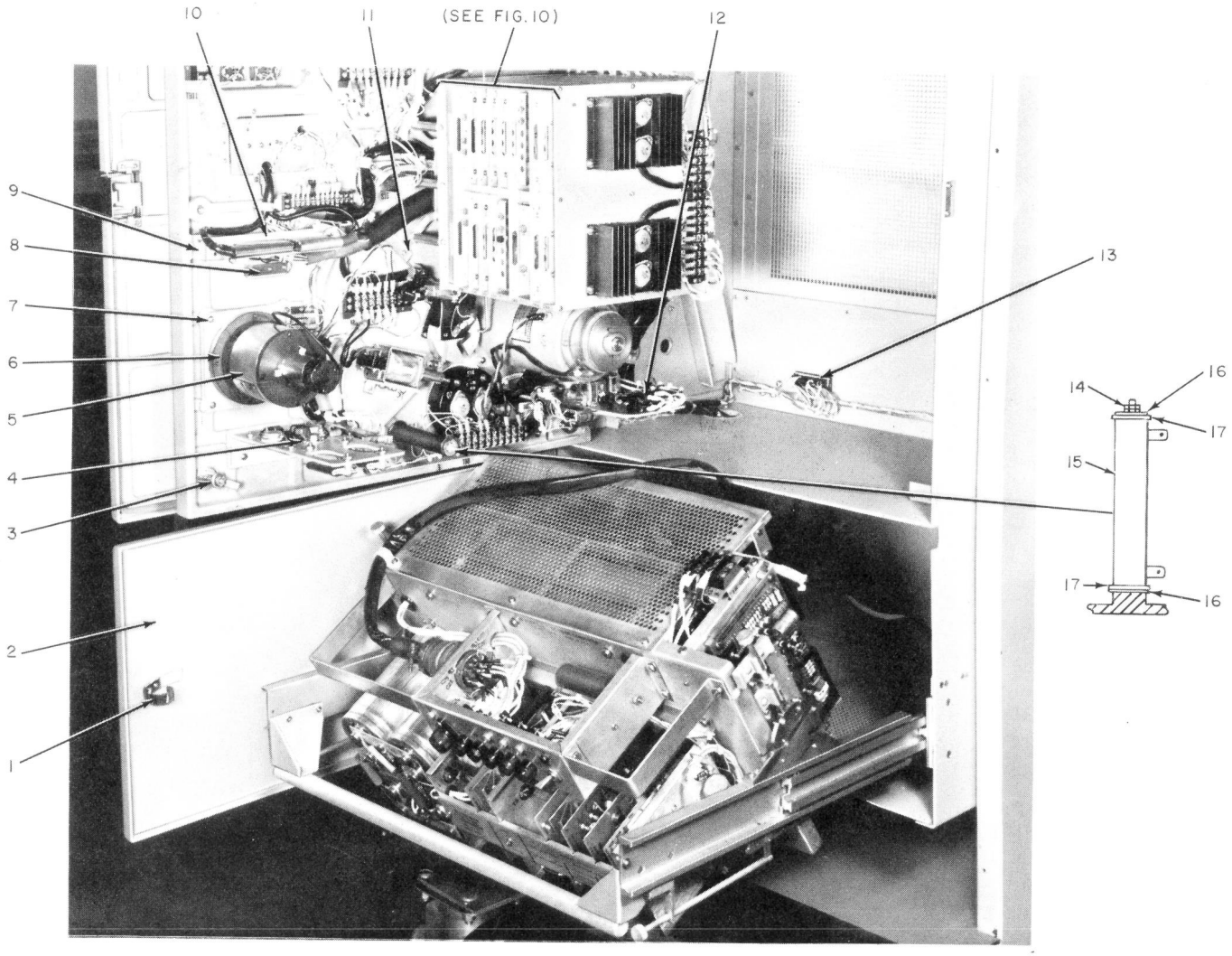


Fig. 6—Partial Rear View of Tape Transport Lower Part (Shown With the KS-21104 Converter Installed) (Sheet 1 of 2)

LEGEND

1. L-502646 Spring
   P-210800 Screw — 2
   P-387666 Lockwasher — 2

2. L-502642 Power Supply Cover

3. 16-10-203-11 Pawl Fastener
   Southco Division
   South Chester Corporation
   Lester, Pennsylvania

4. L-502548 Capstan Servo Assembly
   (CP14)
   P-206519 Screw — 3
   P-242132 Lockwasher — 3

5. L-502558 Capstan Motor Assembly
   (Includes L-502561 Capstan Assembly)
   P-205653 Screw — 4
   P-242132 Lockwasher — 4

6. 0002-6800-1 Brushes
   Electorcraft Corporation

7. L-502559 Capstan Mounting Plate
   (Included as part of L-502558
   Capstan Motor Assembly)

8. L-502620 Plate
   P-210810 Screw — 2
   P-387666 Lockwasher — 2

9. L-502628 Connector Bracket (L1-L2)
   L-514342 Connector Bracket (L3)
   P-92619 Screw — 4
   P-283716 Lockwasher — 4

10. P-283344 Screw — 4
    P-387666 Lockwasher — 4
    P-210828 Nut — 4

11. P-125043 Screw — 4
    P-283716 Lockwasher — 4

12. L-502545 Power Switch Assembly (CP15)
    P-206519 Screw — 4
    P-242132 Lockwasher — 4

13. P-210800 Screw — 8
    P-387666 Lockwasher — 8

14. 302 With 4-3/4 Inch Screw Resistor Mounting — 2
    Dale Electronics, Inc
    Columbus, Nebraska

15. L-502613 Resistor Assembly — 2

16. Centering Washer

17. P-166543 Mica Washer — 2

Fig. 6—Partial Rear View of Tape Transport Lower Part (Shown With the KS-21104 Converter Installed) (Sheet 2 of 2)

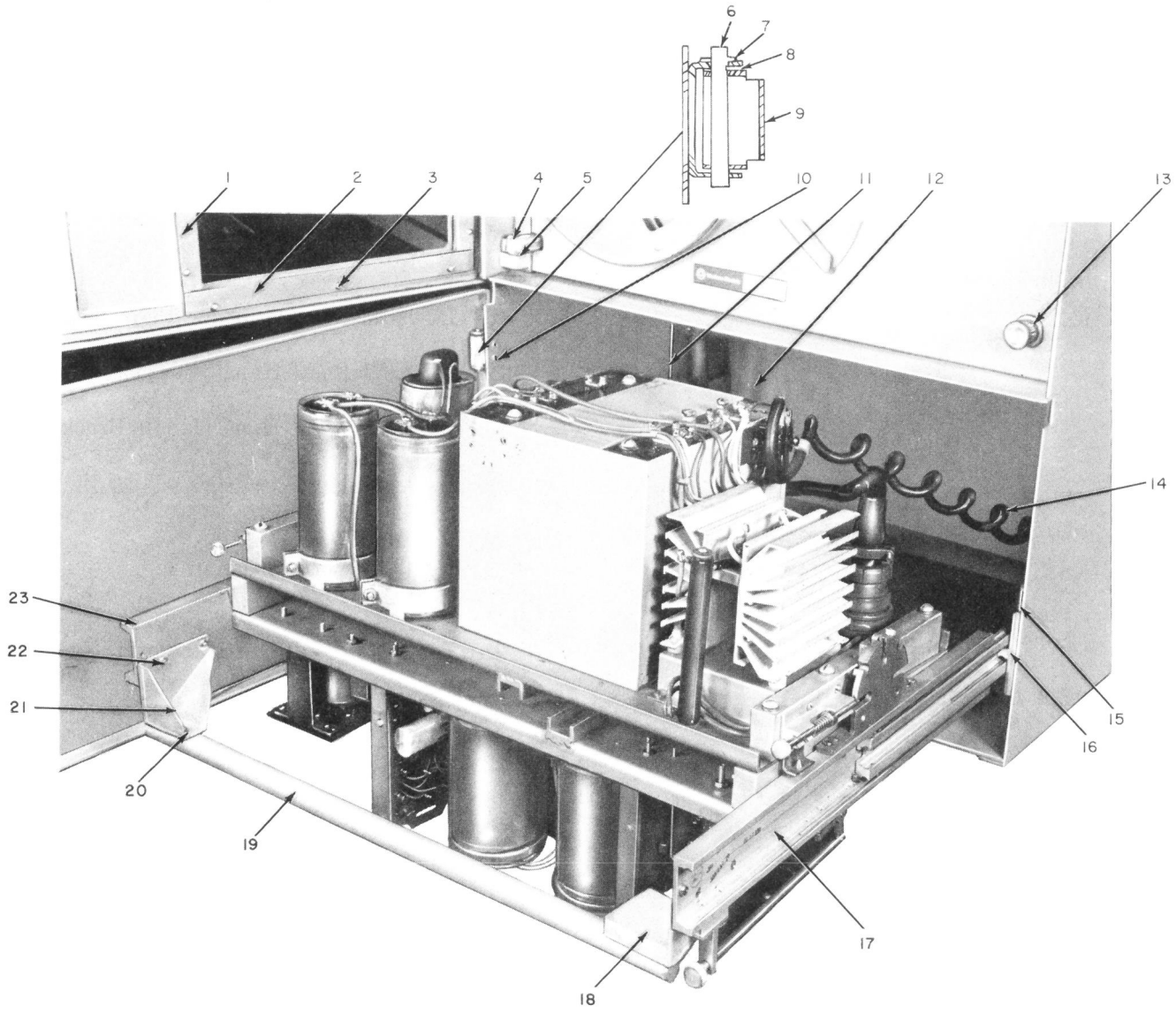


Fig. 7—Partial View of Cover Door Inside With Power Supply Cover Door and Rack (KS-20573, L1, Rectifier Shown Installed) (Sheet 1 of 2)

LEGEND

1. L-502505 Cover Retainer — 2
2. L-502506 Cover Retainer — 2
3. P-124483 Screw — 17
   P-283716 Lockwasher — 17
4. L-502516 Transport Hinge — 2
   Pin (1 per hinge)
   0.2495-0.2497 x 1.00 LG
   Penn Engineering and Manufacturing
   Doylestown, Pennsylvania

   D16-11 Dowel Pin
   (2-pin hinge, 0.1874 DIA x 5/8 LG)
   Winfred M. Berg, Inc
   East Rockaway, New York
5. L-502640 Friction Washer — 2
6. S3-17 Shaft — 2
   Winfred M. Berg, Inc
   East Rockaway, New York
7. 5555-18 Retaining Ring — 2
   Waldes Kohinoor, Inc
   Long Island City, New York
8. P-284151 Plain Washer — 2
9. L-502645 Bracket Assembly — 2
10. P-111374 Screw — 4
11. L-502667 Bracket (L1 only)
    P-111374 Screw
    (Top of bracket not seen)
    P-125043 Screw — 2
    P-284145 Plain Washer — 2
    7/16 4NA Cable Clamp — 2
    Weckesser Company, Inc
    Chicago, Illinois
    (One cable clamp not seen)
    P-125043 Screw
    P-283716 Lockwasher
    (Bottom of bracket not seen)
12. P-205653 Screw — 4
    P-221761 Lockwasher — 4
    P-284148 Plain Washer — 4
13. 16-10-203-11 Pawl Fastener
    Southco Division
    South Chester Corporation
    Lester, Pennsylvania
14. L-502647 Power Cord
15. L-502649 Striker Plate — 2
    P-210167 Screw — 4
16. L-502663 Slide Mounting Plate — 2
17. L-502671 Right Hand Slide
18. L-502637 Right Hand Handle Bracket
19. L-502639 Bar Handle
20. P-205653 Screw — 4
    P-242132 Lockwasher — 4
    P-284148 Plain Washer — 4
21. L-502638 Left Hand Handle Bracket
22. P-92619 Screw — 4
23. L-502672 Left Hand Slide

Fig. 7—Partial View of Cover Door Inside With Power Supply Cover Door and Rack (KS-20573, L1, Rectifier Shown Installed) (Sheet 2 of 2)

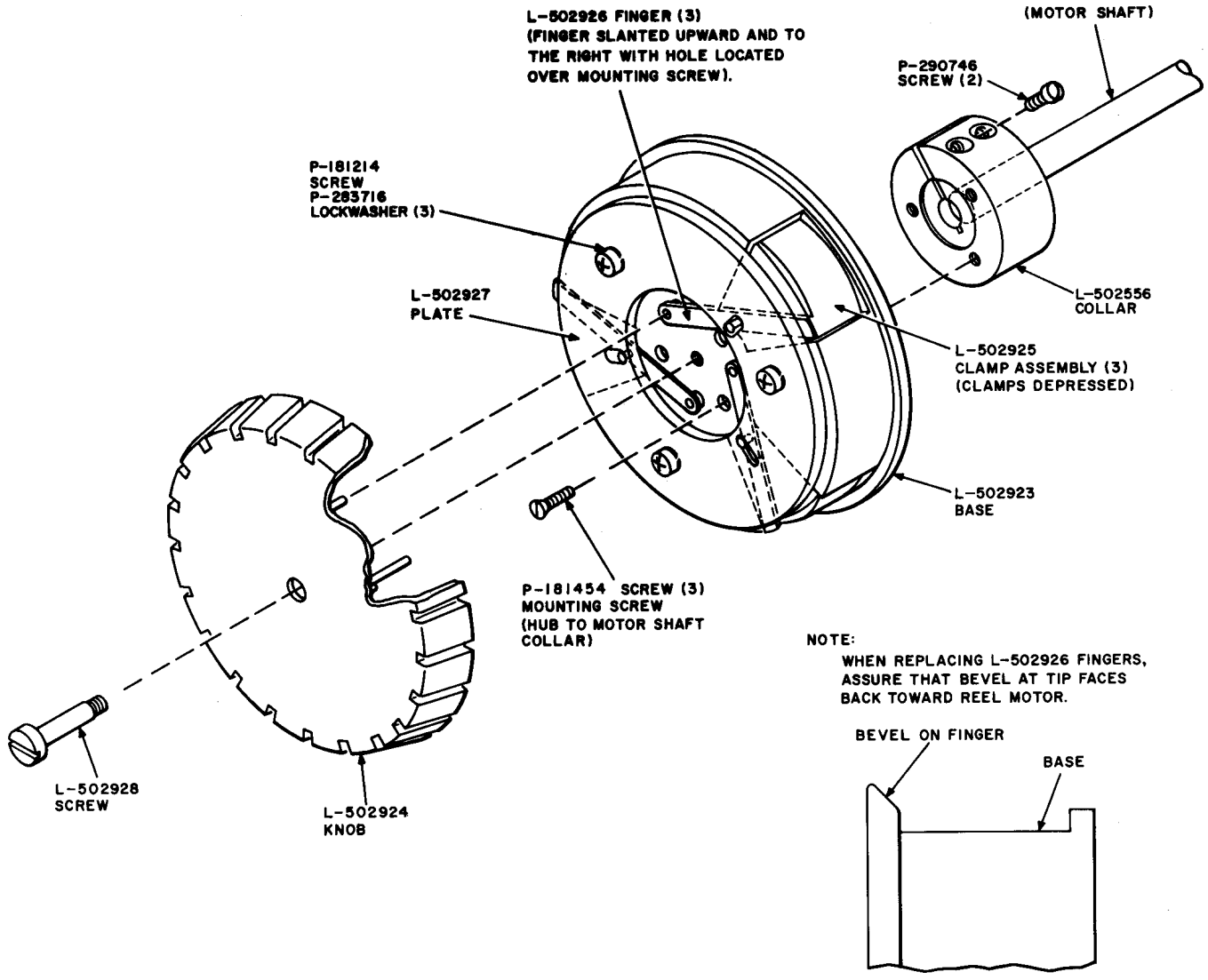
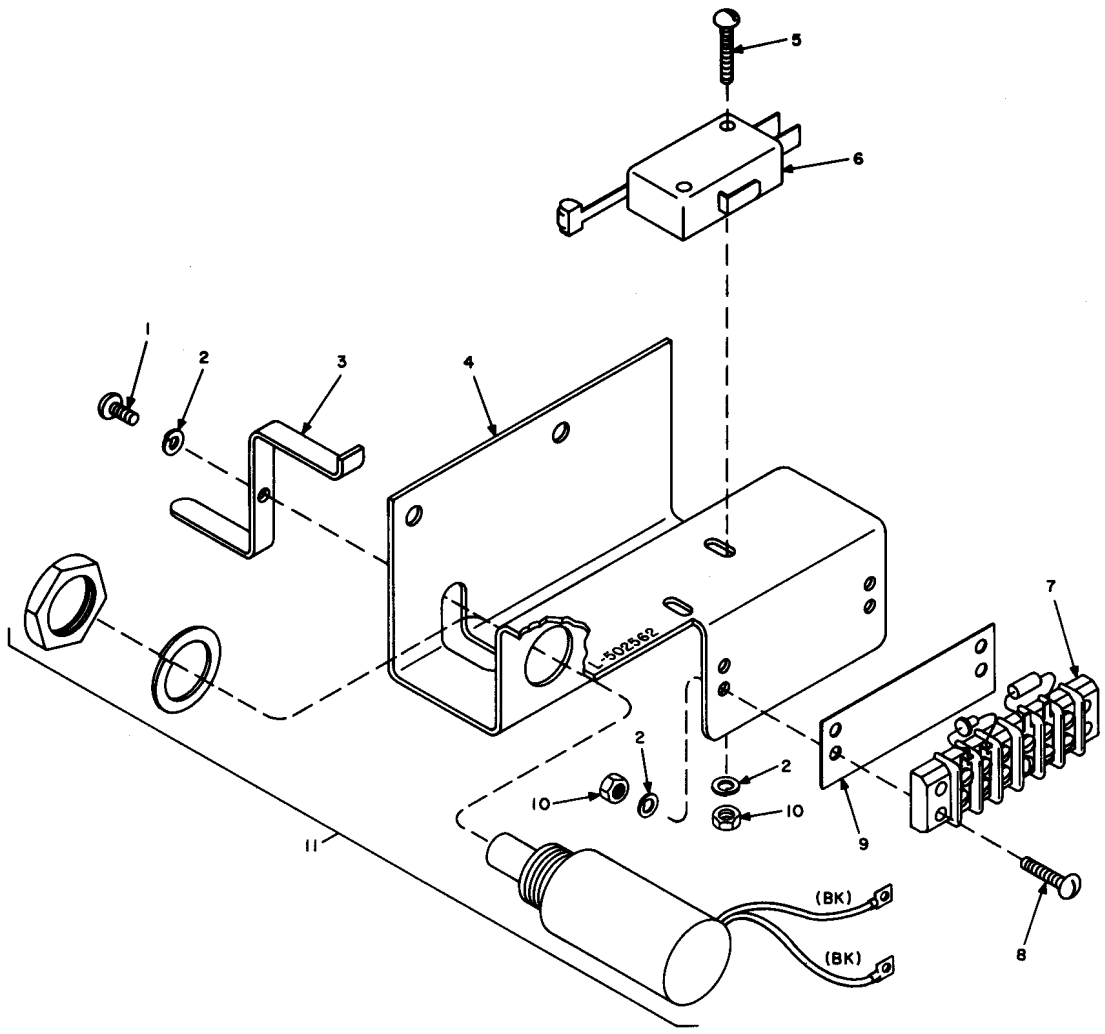


Fig. 8—Reel Holder, L-502922—Detail



LEGEND

1. P-210800 SCREW
2. P-387745 LOCKWASHER
3. L-502564 PROD
4. L-502563 BRACKET
5. P-210814 SCREW 2
6. E23-50K SWITCH (S7)
   CHERRY ELECTRICAL PRODUCTS CORP.
   HIGHLANDS PARK, ILL.
7. 410-6 TERMINAL BOARD
   KULKA ELECTRONIC CORP
   MOUNT VERNON, NEW YORK
8. P-180783 SCREW 4
9. MS410-6 MARKER STRIP
   KULKA ELECTRONIC CORP
10. P-210228 NUT 6
11. L-502515 SOLENOID

Fig. 9—Write Enable Assembly L-502562—Exploded View

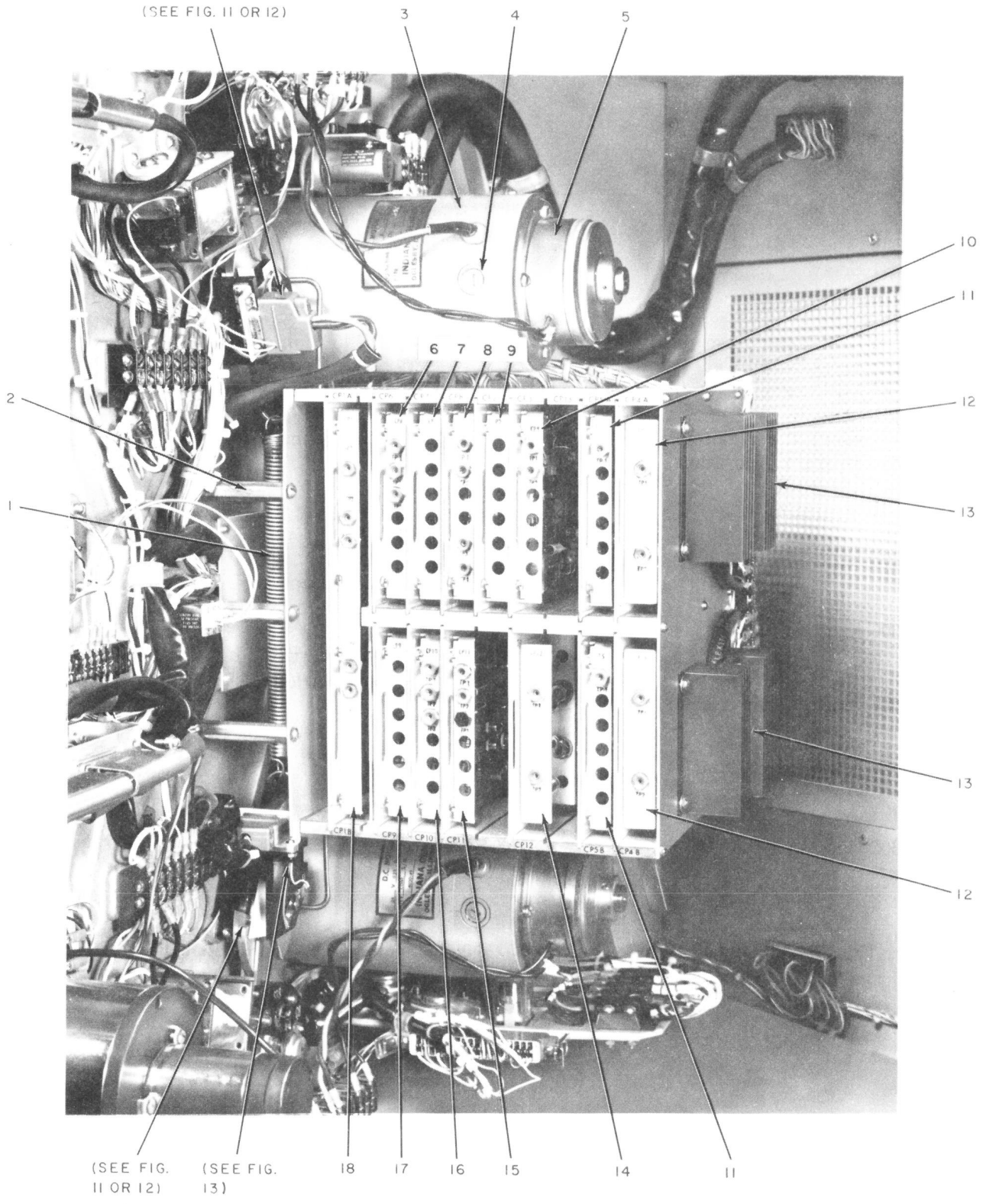
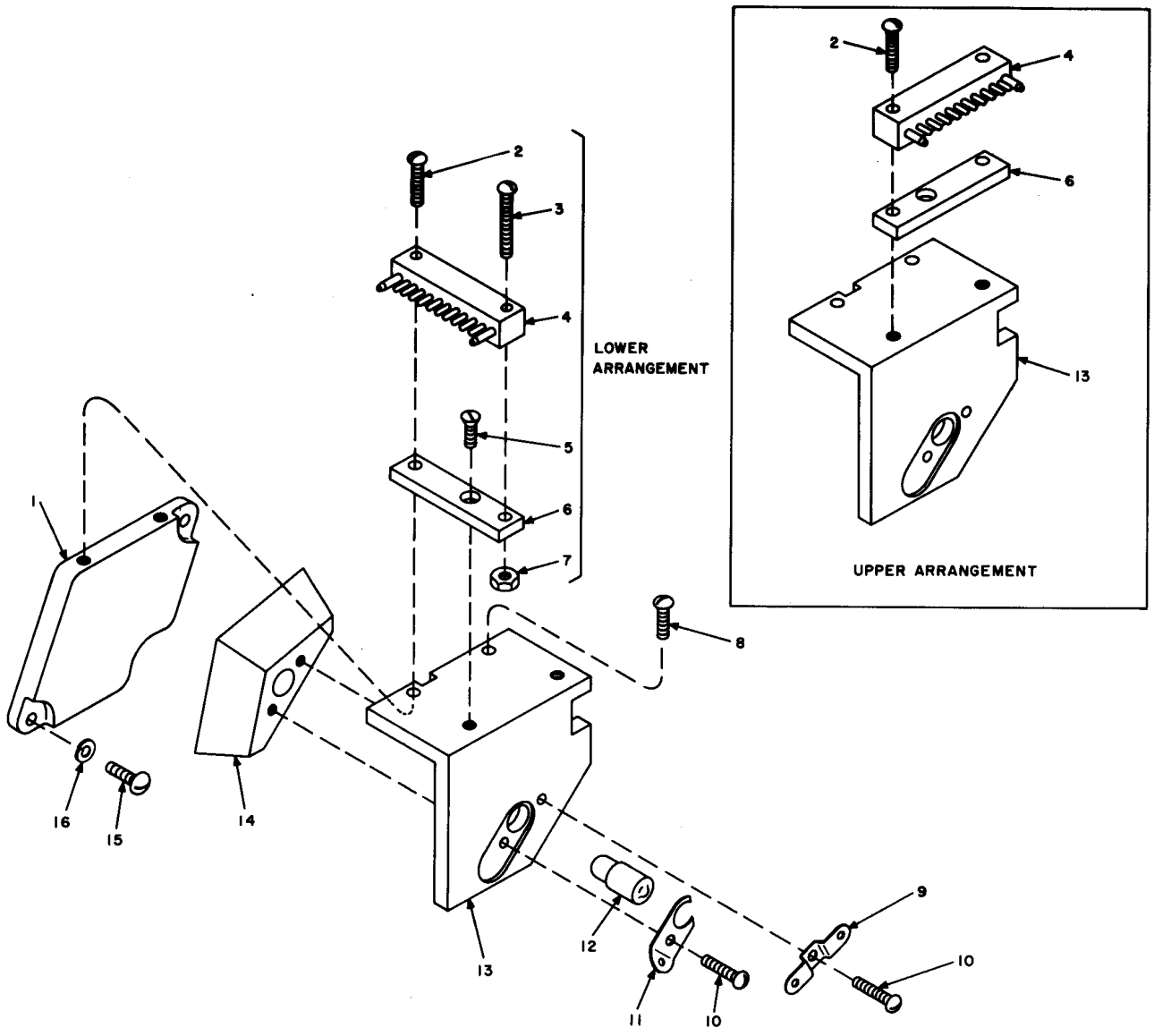


Fig. 10—Printed Circuit Board Chassis L-502590 and Printed Circuit Board Assemblies (Sheet 1 of 2)

LEGEND

1. LE-055E-12 Extension Spring
   Lee Spring Company, Inc
   Brooklyn, New York
2. L-502631 Stud — 6
   P-205651 Screw — 6
   P-242132 Lockwasher — 6
3. L-502554 Reel Motor Assembly — 2
   P-205653 Screw — 8
   P-242132 Lockwasher — 8
4. 2-1820 Brushes (2 per motor)
   Indiana General Corporation
5. L-502574 Magnetic Brake
6. L-502605 EOT/BOT Logic Assembly
   (CP6)
7. L-502606 Lamp Driver
   (CP7)
8. L-502607 Status Logic Assembly
   (CP8)
9. L-502601 Capstan Reference Assembly
   (CP2)
10. L-502602 Capstan Servo Assembly
    (CP3)
11. L-502604 Reel Servo Amplifier
    (CP5)
12. L-502603 Reel Amplifier Assembly
    (CP4)
13. L-502679 Heat Sink Assembly — 2
    P-92619 Screw — 4
    P-284145 Plain Washer — 4
    P-283716 Lockwasher — 4
    (per Heat Sink Assembly)
14. L-502611 Lamp Servo Assembly
    (CP12)
15. L-502610 Capstan Diagnostic Assembly
    (CP11)
16. L-502609 Capstan Diagnotic Assembly
    (CP10)
17. L-502608-1 (L1 and L2) or L-502608-2 (L3)
    Voltage Diagnostic Assembly (CP9)
18. L-502600-1 (L1 and L2) or L-502600-2 (L3)
    Master Logic Assembly (CP1)

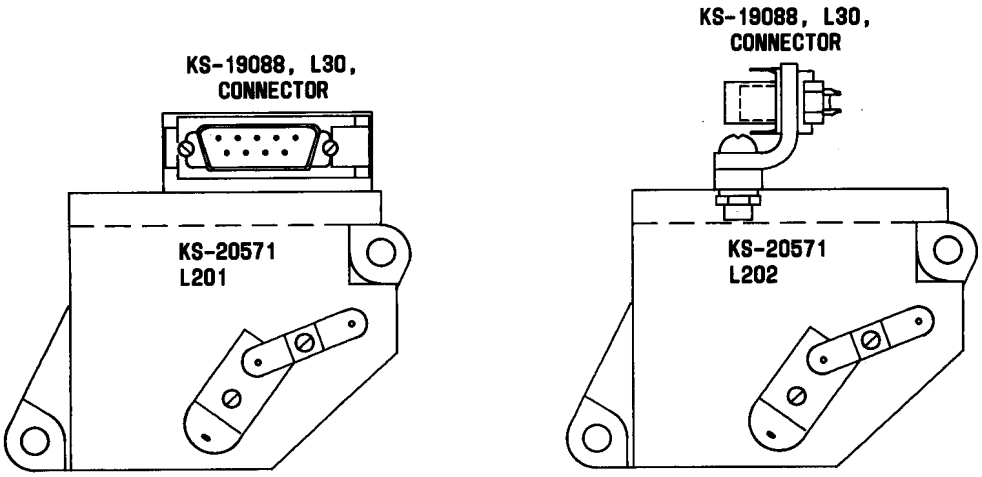
Fig. 10—Printed Circuit Board Chassis L-502590 and Printed Circuit Board Assemblies (Sheet 2 of 2)



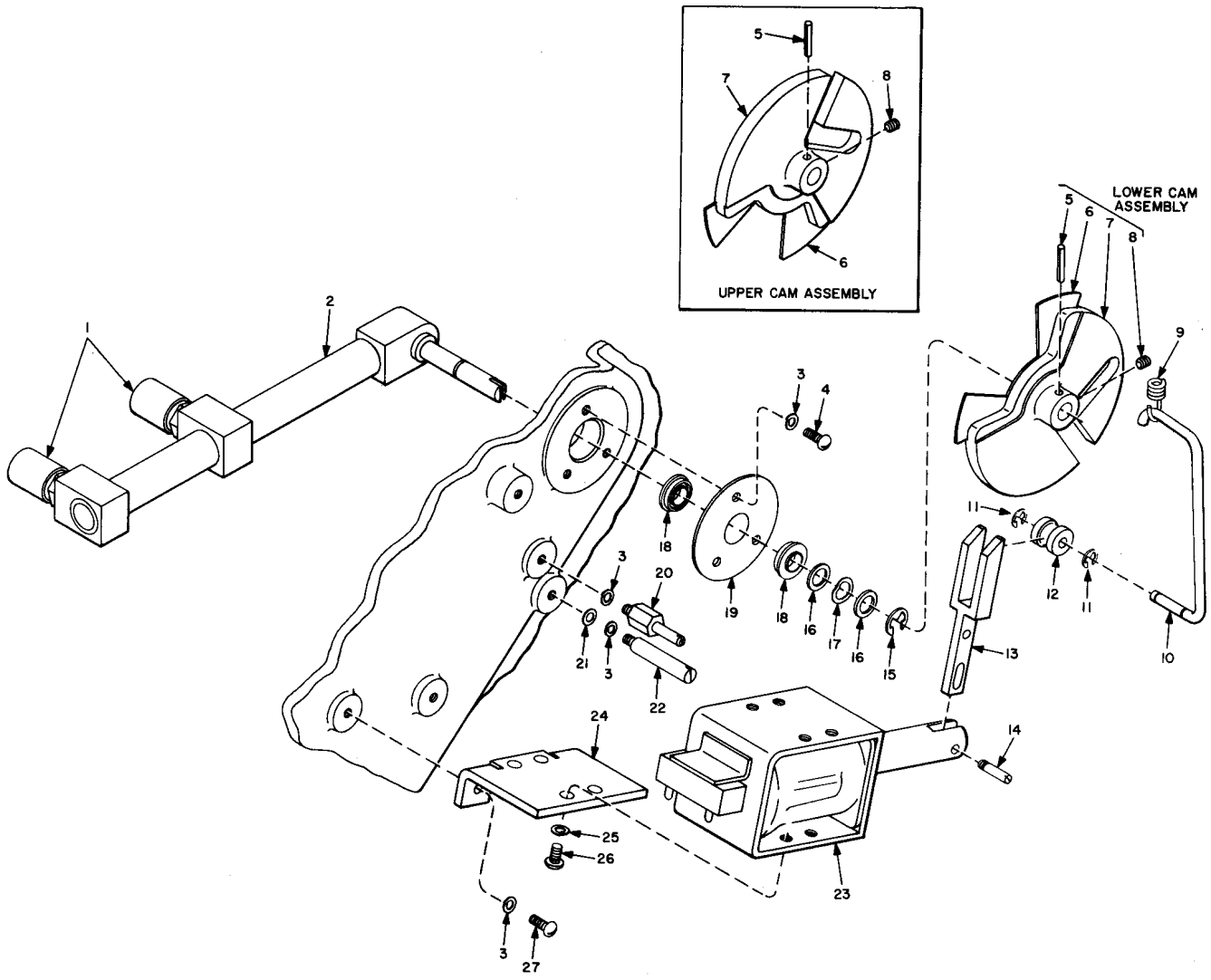
LEGEND

1. L-502518 SENSOR BASE ASSEMBLY
2. P-210813 SCREW 3
3. P-210815 SCREW
4. 25SMMIOPG CONNECTOR
   CONTINENTAL CONNECTOR CORP
   WOODSIDE, NEW YORK
5. P-210799 SCREW
6. L-502523 SPACER
7. P-210828 NUT
8. P-210810 SCREW
9. L-502522 TERMINAL LUG
10. P-115465 SCREW 2
11. L-502521 TERMINAL LUG
12. 381 LIGHT BULB
    GENERAL ELECTRIC CO
    SCHENECTADY, NEW YORK
13. L-502519 LIGHT GUIDE SUPPORT
14. L-502520 LIGHT GUIDE
15. P-124483 SCREW 2
16. P-283716 LOCKWASHER 2

Fig. 11—Tape Tension Arm Sensor Assemblies L-502517 and L-502524—Exploded View (Early Version)



◗Fig. 12—Tape Tension Arm Sensor Assemblies L-502517 (KS-20571, L201) and L-502524 (KS-20571, L202)◖



LEGEND

1. L-502580 ARM TAPE GUIDE ASSEMBLY
   COMCODE NO. 401 871 603 KS LIST NO. L214
2. L-502528 ARM ASSEMBLY COMCODE NO. 401 871 124
3. P-283716 LOCKWASHER
4. P-92619 SCREW
5. SPRING PIN 3/32 IN. X 1/2 IN. LG CRES
   ALL METAL SCREW PRODUCTS CO.
   GARDEN CITY, NEW YORK
6. L-502527 MASK
7. L-502526 CAM
   L-502525-1 CAM ASSEMBLY (LOWER)
   COMCODE NO. 401 871 108
   (INCLUDES ITEM 6 AND 7)
   L-502525-2 CAM ASSEMBLY (UPPER)
   COMCODE NO. 401 871 116
   (INCLUDES ITEM 6 AND 7
8. HEX SOC SET CUP POINT
   0.138-32 X 1/8 IN. CRES
9. LE-055E-12 EXTENSION SPRING
   LEE SPRING CO. INC
   BROOKLYN, NEW YORK
10. L-502625 SPRING HOLDER
    COMCODE NO. 401 871 694
11. 5133-12 RETAINING RING
    WALDES KOHINOOR, INC.
    LONG ISLAND CITY, NEW YORK
12. L-502624 ROLLER
    COMCODE NO. 401 871 868
13. L-502623 CAM FORK
    COMCODE NO. 401 871 637
14. L-502621 SCREW
    COMCODE NO. 401 871 876
15. 5133-25 RETAINING RING
    WALDES KOHINOOR, INC.
    LONG ISLAND CITY, NEW YORK
16. SS3-8 BEARING SPACER
    WINFRED M. BERG. INC.
    EAST ROCKAWAY, NEW YORK
17. SV-1 SPRING WASHER
    WINFRED M. BERG. INC.
    EAST ROCKAWAY, NEW YORK
18. S614FCHHE5LG-39 BALL BEARING
    MPB CORP
    PRECISION PARK, KEENE, N.H.
19. L-502619 BEARING PLATE
20. L-502622 PIVOT
    COMCODE NO. 401 871 801
21. P-284145 WASHER, PLAIN
22. L-502630 SOLENOID STOP
    COMCODE NO. 401 871 934
23. L-502614 SOLENOID ASSEMBLY
    COMCODE NO. 401 871 298
    KS LIST NO. L232
24. L-502629 SOLENOID BRACKET
25. P-242132 LOCKWASHER
26. P-205651 SCREW
27. P-124483 SCREW

Fig. 13—Tape Tension Arm Load Position and Reel Motor Control Mechanism—Exploded View

LEGEND

1. L-502633 RIGHT HAND MOUNTING STRIP (L1)
   COMCODE NO. 401 871 942
   L-502634 RIGHT HAND MOUNTING STRIP (L2 AND L3)
   COMCODE NO. 401 871 954
2. P-125209 SCREW
   P-284151 PLAIN WASHER
   P-223512 LOCKWASHER
   (28 WHEN USED WITH L1)
   (22 WHEN USED WITH L2 OR L3)
3. KS-16427 L16 CONNECTOR (L1 AND L2) OR
   KS-16427 L17 CONNECTOR (L3)
4. P-125043 SCREW (4)
   P-284145 PLAIN WASHER (4)
5. KS-16427 L15 CONNECTOR-(2)
6. P-210800 SCREW (8)
   P-387666 LOCKWASHER (8)
7. L-502668 LEFT HAND MOUNTING STRIP (L1)
   COMCODE NO. 401 871 967
   L-502669 LEFT HAND MOUNTING STRIP (L2 AND L3)
   COMCODE NO. 401 871 975
8. 11/16 6NA CABLE CLAMP TYPE 6 (L1 AND L2) OR
   11/8 6NA (L3)
   WECKESSER COMPANY, INC.
   CHICAGO, ILL.
9. L-502656 BACK COVER PLATE
10. P-205653 SCREW (8)
    P-242132 LOCKWASHER (8)
11. KS-16427 L16 CONNECTOR
12. 1/4 4NA CABLE CLAMP TYPE 4
    WECKESSER COMPANY, INC.
    CHICAGO, ILL.
13. SR-6L-1 STRAIN RELIEF BUSING
    HEYMAN MANUFACTURING CO.
    KENILWORTH, N. J.
14. P-206519 SCREW (4)
    P-242132 LOCKWASHER (4)
    P-284148 PLAIN WASHER (4)
15. 7/16 4NA CABLE CLAMP TYPE 4 (L1 AND L2) OR
    11/16 6NA (L3)
    WECKESSER COMPANY, INC.
    CHICAGO, ILL.

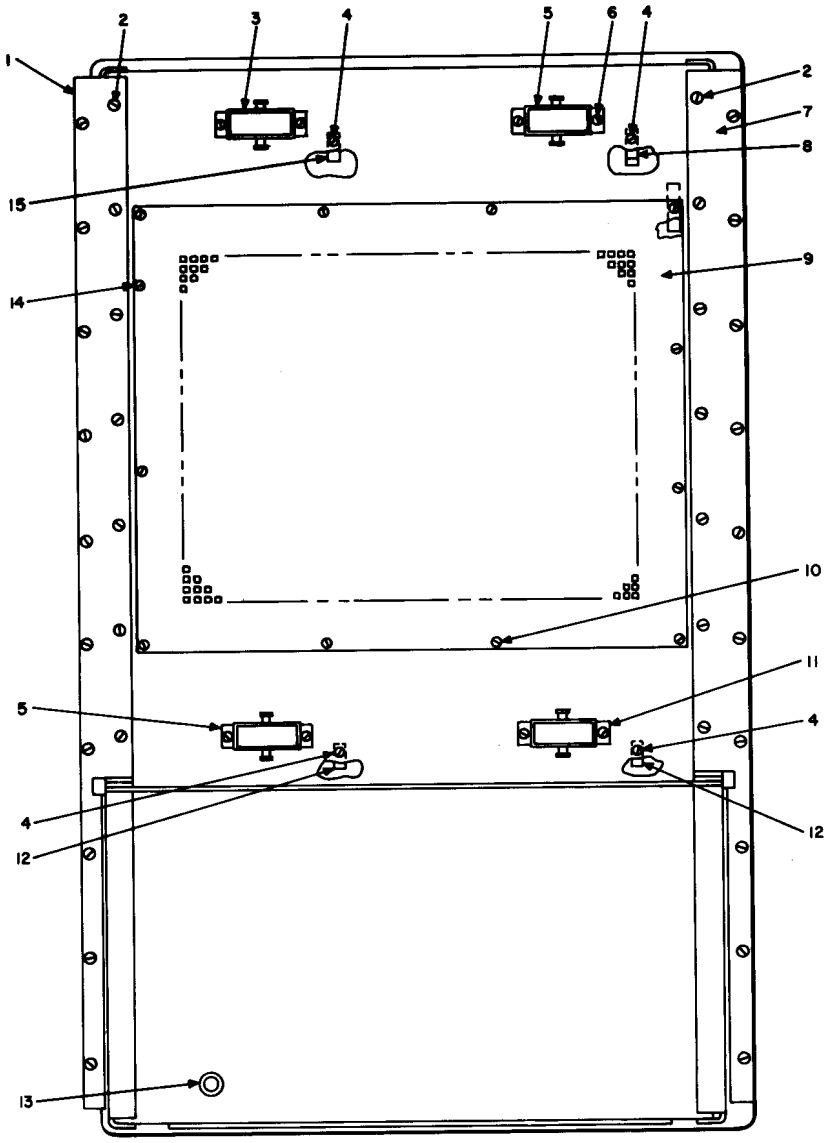


Fig. 14—KS-20571 Recorder—Rear View

3. REPLACEMENT PROCEDURES

3.01 ***List of Tools and Materials:*** The following tools and materials are used in this section.

TOOLS	DESCRIPTION
33	11/32 Hexagon Single-End Socket Wrench
417A	1/4- and 3/8-Inch Open-End Wrench (3/8-inch end modified to less than 0.098-inch thickness for use on arm tape guide assemblies) (or equivalent)
KS-2631	Screwdriver
KS-6854	Screwdriver
KS-14377, L5	Vacuum Cleaner (or equivalent) equipped with a KS-14377, L30, flexible nozzle (or equivalent)
R-1021	Brush, 1/2-Inch, Flat
R-2958	5/64-Inch Hex Socket Screw
R-2959	1/16-Inch Hex Socket Screw
—	3-Inch C Screwdriver
—	4-Inch C Screwdriver
—	4-Inch E Screwdriver
—	Knife, electrician
—	E-0120 Applicator and
—	E-0250 Applicator, Waldes Kohinoor, Inc, 47-16 Austel Place, Long Island City, New York, New York
—	612 Screw Starter, Rinch-McIlwaine, Inc (or equivalent)
—	B50 Torque Screwdriver and 185-D Socket Head Bit, APCO Mossberg Company
MATERIALS	
KS-2423	Twill Cloth
—	Solvent, Toluene (ASTM D362)
—	Adhesive, EC-870, 3M Company (same as X 17049 L1 adhesive)
—	C-2471 Heat Sink Compound, American Oil and Supply Company, Newark, New Jersey

3.02 Prior to performing any replacement or repair procedures, the recorder must be removed from service in accordance with local practices. Unless otherwise specified, electrical power to the recorder shall be removed.

3.03 After replacement of any part(s), the recorder shall meet the requirements as specified in Section 034-369-701. Replacement operations may affect the adjustment of other parts. Such parts shall be checked against requirements and adjusted as required. Power is restored to the recorder in accordance with local instructions.

> ***Note: Circuit packs 2, 3, 10, 11, and 14*** require adjustments in accordance with Section 034-369-701 when replaced.

3.04 No instructions are given for the replacement of screws or other parts where the procedure is obvious and consists of a simple operation. Antiseize compound is ***not specified*** for use on all screw threads in the KS-20571 recorder. All replacement procedures covered in this section can be performed without removing the recorder from the frame.

3.05 The recorder (Fig. 1) is equipped with an interlocked cover door and transparent area for observing tape reel motion during operation. The transport interlock switch is a rod-operated switch actuated by the front dust cover door. When the door is closed, the interlock switch is held ***on*** by the door. When the door is opened, the interlock switch is automatically returned to ***off*** which removes servo power, and de-energizes the reel motor brakes causing them to apply breaking force to the tape transport. When the pushrod is pulled out with the door open, the transport is in the ready condition, but a door open signal is also sent to the external equipment.

DUST COVER DOOR ASSEMBLY AND ASSOCIATED PARTS

3.06 ***Front Dust Cover Assembly:*** The following procedures are required when replacing the front dust cover assembly and associated parts.

(a) To replace the front cover assembly (Fig. 1), proceed as follows:

(1) Unlatch and open the dust cover door.

(2) While holding the assembly, use the 4-inch C screwdriver to remove the three screws and washers of both hinges from the assembly side of the hinge.

(3) Mount the replacement cover assembly in reverse order of removal.

(4) Verify that the assembly opens and closes properly.

(5) Verify that the door latches securely and releases easily.

(6) Lubricate the hinges in accordance with Section 034-369-701.

(b) To replace the L-502507-1 or L-502507-2 cover pane (Fig. 1), proceed as follows:

(1) Remove the front cover assembly in accordance with (a).

(2) Place the assembly, front downward, on a flat working surface.

(3) Remove the four or two retainer covers mounting screws and washers using the 4-inch C screwdriver.

(4) Remove the retainers.

Note: The gasket should come off with the retainers. If not, pull off the gasket material left behind by removal of the retainers. Discard the gasket material if torn or otherwise damaged.

(5) Lift out the pane intended to be replaced.

(6) Peel the protective paper from the replacement pane, and then insert the pane in place.

(7) If necessary, clean the retainer covers of old gasket rubber and adhesive traces by scraping with a knife blade. Then wipe the surface with a KS-2423 twill cloth moistened with Toluene (ASTM D362) solvent. Wipe the surfaces dry with a KS-2423 twill cloth.

(8) Insert the replacement L-502509-1 gasket, and cut to proper length.

(9) Lightly coat the upward gasket surface with X 17049 L1 adhesive (same as 3M Company No. EC-870).

(10) Remount the cover retainers by pressing into place.

(11) Remount the cover assembly onto the recorder in accordance with (a).

REEL DRIVE MOTOR ASSEMBLY AND ASSOCIATED PARTS

3.07 ***Reel Drive Motor Assembly:*** To replace the reel drive motor assembly, proceed as follows:

(1) From the front of the transport, remove the L-502928 shoulder screw (Fig. 8) that fits through the center of the L-502924 hub using the 4-inch E screwdriver.

(2) Remove the L-502924 knob by lightly pulling outward.

Note: Knob removal exposes three flathead machine screws at the bottom of the recess in the center of the hub assembly. The flathead screws hold the hub assembly to the motor shaft collar (Fig. 8) that is not visible at this point. All other parts of the hub assembly are captive at this point and may be displaced slightly to facilitate removal of the three flathead machine screws.

(3) Remove the three P-181454 flathead machine screws using the 4-inch E screwdriver.

(4) Pull off the reel hub assembly.

(5) From the back of the transport door, disconnect the two motor leads (red and black) and the two brake leads (both black) from TB2 or TB8 using the 4-inch C screwdriver.

(6) Remove the four reel motor mounting screws and washers using the 4-inch E screwdriver to remove the screw most of the way out; then use the 612 screw starter for complete removal.

Note: Do not disturb the motor assembly drive shaft collar. A particular setting has been made by the manufacturer. Displacement of the collar will cause faulty tracking of the magnetic tape over the tape guides.

(7) Apply a uniform coat of C-2471 compound to the mounting surface of the replacement reel drive motor assembly using the R-1021 brush.

(8) Mount the replacement reel motor assembly so that the power and brake leads exit the motor nearest to the associated terminal board.

(9) Twist the motor leads (as a pair), and connect to the terminal board in accordance with Fig. 15.

(10) Twist the motor brake leads (as a pair), and connect to the terminal board (Fig. 15).

(11) Mount the inner reel hub assembly to the collar on the reel motor main shaft.

(12) From the front of the transport, depress the rubber tipped blocks toward the center of the hub assembly to position the fingers as shown in Fig. 8; then install the L-502924 knob by inserting the three protruding pins through the holes in the end of the three fingers.

(13) Push in on the knob, and insert and tighten the L-502928 screw.

(14) Apply power to the new motor assembly, and check the reel hubs to make sure that the reel turns true and no wobble can be detected.

3.08 ***Reel Drive Motor Brake:*** To replace the reel drive motor brake, proceed as follows:

(1) With recorder power removed, disconnect the two black brake leads from TB2-8 and TB2-10 (supply reel motor) or TB8-8 and TB8-10 (take-up reel motor) using the 4-inch C screwdriver.

(2) ▶For late model tape transports, remove the roll pin (using a 1/8-inch punch) securing the break collar to the motor shaft. For earlier models, loosen the two set screws that secure the magnetic brake to the motor shaft, using the R-2958 hex socket screw wrench.◀

(3) Using the 4-inch C screwdriver, remove the four brake mounting screws and washers that secure the brake housing to the motor housing.

(4) Remove the brake from the reel motor.

(5) When installing the replacement brake, align the setscrews on the reel motor shaft flats.

(6) Install and connect the preshimmed replacement brake in reverse order of removal, and torque the setscrews to 15 inch-pounds using the APCO Mossberg B50 torque screwdriver equipped with the 185-0 socket head bit (5/64 inch).

(7) Twist the motor brake leads (as a pair) before connection to the terminal board (Fig. 15).

(8) Remove the screws on the brake plate, and then remove the spacer shims.

CAPSTAN MOTOR ASSEMBLY AND ASSOCIATED PARTS

3.09 ***Capstan Motor Assembly:*** To replace the capstan motor assembly, proceed as follows:

(1) Unload any reel of tape from the transport.

(2) From the back of the transport, remove the three cable assembly leads from TB5 and the two motor leads from TB6.

(3) Using the 4-inch E screwdriver, remove the four motor assembly mounting screws and washers being careful to support the assembly while removing the last mounting screw.

(4) Carefully guide the capstan assembly through the transport casting hole.

(5) Carefully inspect the capstan mounting plate of the replacement assembly and the mounting surface on the transport casting. Remove all burrs and dirt prior to mounting the replacement assembly.

(6) Apply a uniform coat of C-2471 compound to the mounting surface of the capstan mounting plate using the R-1021 brush.

(7) Mount the replacement assembly so that TB5 is located at the top right side of the mounting plate.

(8) See Fig. 15 for lead color codes and terminal number assignment. Then connect the three cable assembly leads to TB5 and the two motor leads to TB6.

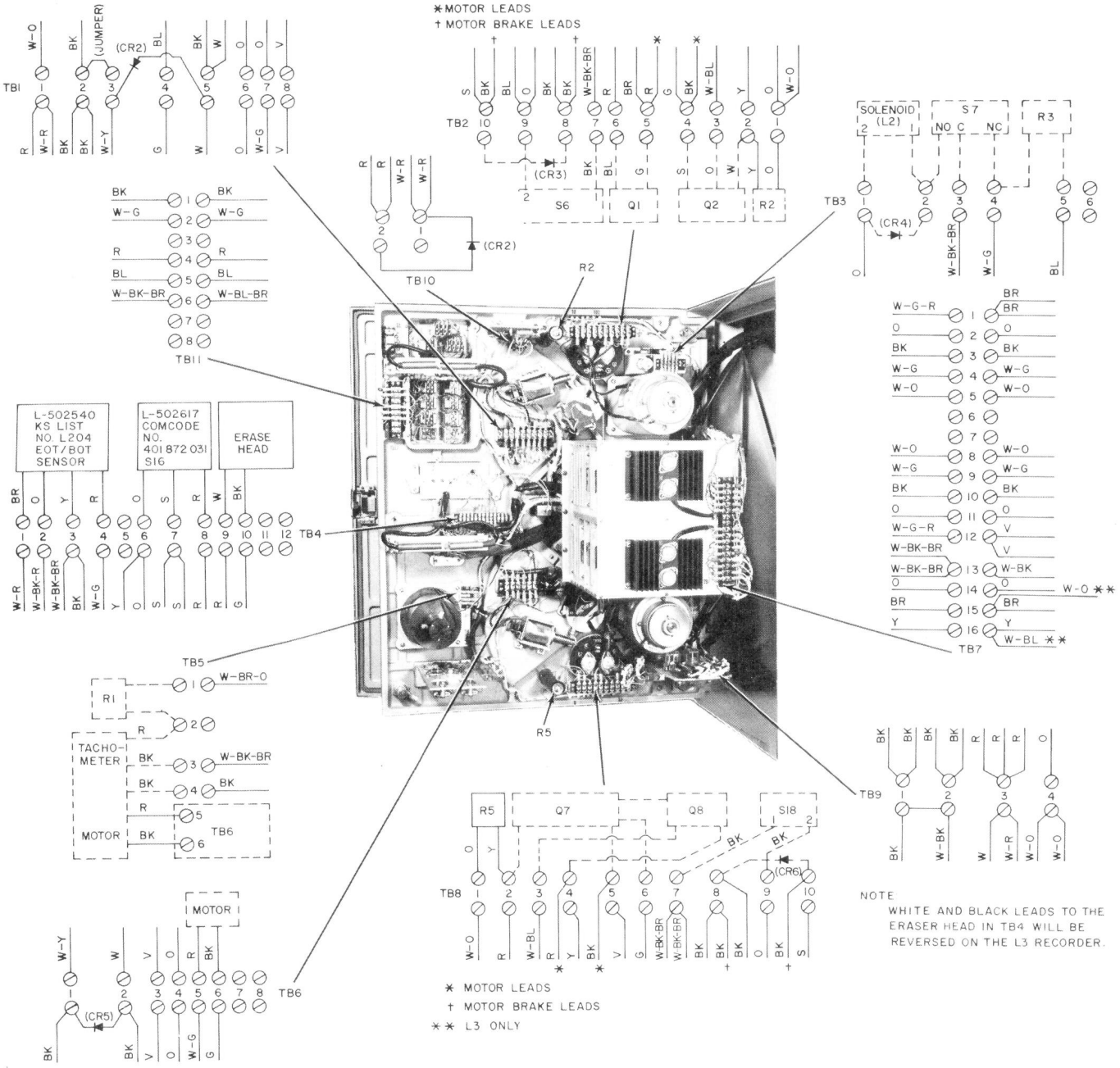


Fig. 15—Terminal Board Wiring Color Codes

(9) ⏵Clean the capstan ring using KS-20406, L1, cleaner and a KS-2423, L1, cotton twill cloth. (Let dry for 1 to 2 minutes before use.)⏴

(10) Perform the capstan speed requirement check, as required, in accordance with Section 034-369-701.

3.10 ***Capstan Servo Assembly (CP14):*** To replace the capstan servo assembly, proceed as follows:

(1) Disconnect P6 connector from CP14.

(2) Using the 4-inch C screwdriver, remove the three CP14 bracket mounting screws and associated washers that are located beneath the circuit pack.

(3) Apply a uniform coat of C-2471 compound to the mounting surface of the replacement assembly using the R-1021 brush.

(4) Mount the replacement CP14 in reverse order of removal.

(5) Perform the capstan speed requirement check in accordance with Section 034-369-701.

PRECISION PLATE ASSEMBLY AND ASSOCIATED COMPONENTS

3.11 ***Precision Plate and Mounted Components:*** ⏵***Caution: After replacement of any head, the new head should be cleaned with a KS-2423, L1, cotton twill cloth lightly moistened with KS-20406, L1, cleaner prior to use.***⏴ The following procedures are required when replacing the precision plate and associated components.

(a) ***Precision Plate Assembly:*** To replace or remove the precision plate assembly, proceed as follows:

Note: The plugs on both the read and write head cables are too large to fit through the precision plate access holes. Precision plate removal is required to replace the read and/or write heads.

(1) Remove any tape reel from the transport.

(2) From the back of the transport, remove the cable clamp, screw, and washer that secures the cables of J4 (write head) and P5 (read head) using the 4-inch C screwdriver.

(3) Disconnect the erase head leads from TB4 (Fig. 15) using the 4-inch C screwdriver.

(4) Disconnect J4 and P5.

(5) Remove the precision plate adjusting screws using the 3-inch C screwdriver (Fig. 16) to prevent screw damage.

(6) Remove the lower precision plate mounting screw and washer first using the 4-inch C screwdriver.

(7) While supporting the precision plate assembly, remove the upper plate assembly mounting screw and washer.

(8) Very gently remove the precision plate assembly.

(9) Carefully inspect the replacement precision plate mounting surfaces and the transport casting mounting surfaces. Remove all burrs and dirt prior to mounting the assembly.

(10) Mount the precision plate assembly in reverse order of removal.

(11) Perform the static skew requirements check and adjustment in accordance with Section 034-369-701.

(b) ***Write Head:*** To replace the write head, proceed as follows:

Note: On the L3 recorder, the erase head L-514283 is mounted and factory adjusted to the L-514285 write head. The erase head/write head pair should be replaced as a unit. Spare part orders should specify a factory adjusted assembly of L-514283/L-514285 of erase and write heads. While the three heads on the L1 and L2 recorders and the read head and erase/write assembly on the L3 recorder are individually replaceable, the entire head compliment should be changed (in the event of a shorted or open winding, scratched surface, etc) when tape wear has produced a penetration into the surface more than two tape thicknesses.

(1) Remove the precision plate assembly in accordance with (a).

(2) Using the 3-inch C screwdriver, gently remove the write head mounting screw from the back of the plate (Fig. 16).

(3) Gently lift the write head outward.

(4) Carefully inspect the replacement write head mounting surface and plate mounting surface for burrs and dirt. Remove all dirt prior to mounting the replacement write head.

(5) Mount the replacement write head in reverse order of removal.

(6) Remount the precision plate assembly in accordance with (a).

(7) Perform the following requirement checks and adjustments in accordance with Section 034-369-701:

- Static skew
- Pulse amplitude and waveshape.

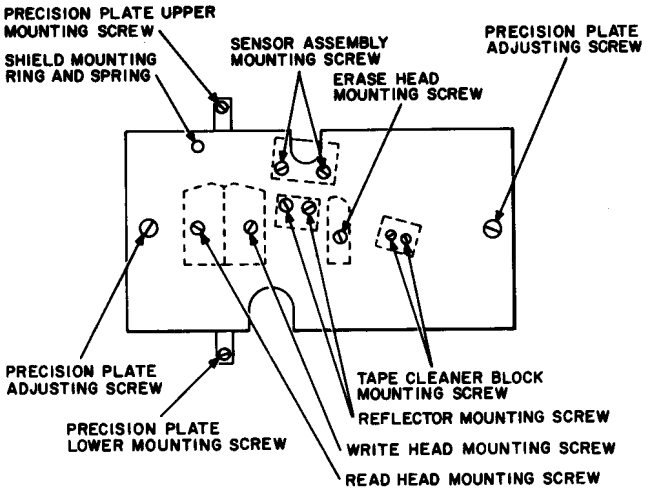


Fig. 16—Precision Plate Assembly (L1 and L2 Recorders) —Rear View Showing Component Mounting Screws

(c) ***Read Head:*** To replace the read head, follow the same procedure as for the write head (b) including the same requirement checks and adjustments.

Note: While the three heads on the L1 and L2 recorders and the read head and erase/write assembly on the L3 recorder are individually replaceable, the entire head compliment should be changed (in the event of a shorted or open winding, scratched surface, etc) when tape wear has produced a penetration into the surface more than two tape thicknesses.

(d) ***Erase Head (L1 and L2 Only):*** To replace the erase head, proceed as follows:

Note: On the L3 recorder, the erase head L-514283 is mounted and factory adjusted to the L-514285 write head. The erase head/write head pair should be replaced as a unit. Spare part orders should specify a factory adjusted assembly of L-514283/L-514285 erase and write heads. Removal of the precision plate assembly is ***not*** required to replace the erase head.

(1) Remove any tape reel from the transport.

(2) From the back of the transport, disconnect the erase head leads from TB4 (Fig. 15) using the 4-inch C screwdriver.

(3) While supporting the erase head, gently remove the erase head mounting screw using the KS-6854 screwdriver (Fig. 16 or 17).

(4) Remove the erase head by guiding the associated leads through the cutaway hole.

(5) Carefully inspect the replacement erase head mounting surface and the precision plate mounting surface. Remove all burrs and dirt before mounting the replacement erase head.

(6) Mount the replacement erase head in reverse order of removal.

(7) Perform the following requirement checks and adjustments in accordance with Section 034-369-701:

- Static skew
- Erase head effectiveness.

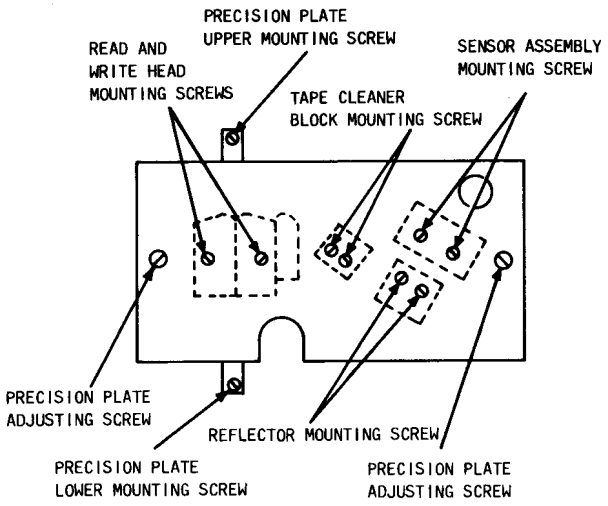


Fig. 17—Precision Plate Assembly (L3 Recorder)—Rear View Showing Component Mounting Screws

(e) ***Tape Cleaner:*** To replace the tape cleaner block or tape cleaner, proceed as follows:

Note: Replacement of the tape cleaner requires removal of the tape cleaner block to access two of the screws that secure the tape cleaner to the tape cleaner block (Fig. 3 or 4).

(1) Remove any tape reel from the transport.

(2) From the back of the transport and while supporting the tape cleaner block, gently remove the tape cleaner block mounting screws (Fig. 16 or 17) using the KS-6854 screwdriver.

(3) If the tape cleaner is to be replaced, use the KS-6854 screwdriver to remove and replace the four screws and washers (Fig. 3 or 4).

(4) Carefully inspect the block mounting surface and the precision plate mounting surface. Remove all burrs and dirt prior to mounting the assembly.

(5) Mount the tape cleaner block in reverse order of removal.

(6) Perform the static skew requirement check and adjustment in accordance with Section 034-369-701.

(f) ***End-of-Tape/Beginning-of-Tape (EOT/BOT) Sensor Assembly:*** To replace the EOT/BOT sensor assembly, proceed as follows:

(1) Remove any tape reel from the transport.

(2) From the back of the transport, disconnect the four sensor assembly leads from TB4 (Fig. 15) using the 4-inch C screwdriver.

(3) While supporting the sensor assembly, gently remove the assembly mounting screws (Fig. 16 or 17) using the 3-inch C screwdriver.

(4) Remove the sensor assembly by guiding the associated leads through the hole.

(5) Carefully inspect the replacement assembly mounting surface and the precision plate mounting surface. Remove all burrs and dirt prior to mounting the replacement assembly.

(6) Mount the assembly in reverse order of removal.

(7) Perform the static skew requirement check and adjustment in accordance with Section 034-369-701.

(8) Perform the EOT/BOT sensor requirement check in accordance with Section 034-369-701.

(g) ***Reflector:*** To replace the reflector, proceed as follows:

(1) Remove any tape reel from the transport.

(2) From the back of the transport and while supporting the reflector, remove the reflector mounting screws (Fig. 16 or 17) using the 3-inch screwdriver.

(3) Carefully inspect the replacement reflector mounting surface and the precision plate mounting surface. Remove all burrs and dirt prior to mounting the replacement.

(4) Mount the replacement reflector in reverse order of removal, making sure that the mounting holes are toward the top of the transport.

(5) Perform static skew requirement check and adjustment in accordance with Section 034-369-701.

(h) ***Shield:*** To replace the shield, proceed as follows:

(1) Remove any tape reel from the transport.

(2) From the back of the transport, remove the 5133-12 retaining ring (Fig. 3 and 16) using the KS-2631 screwdriver and then remove the spring washer.

(3) Remove the shield pin from the front of the transport.

(4) Remove the shield.

(5) Carefully inspect the replacement shield mounting surface and the precision plate mounting surface. Remove all burrs and dirt prior to mounting the replacement shield.

(6) Mount the shield in reverse order of removal, and use the E-0120 applicator to install the retaining ring.

(7) Perform the static skew requirement check and adjustment in accordance with Section 034-369-701.

TAPE POSITION SENSOR ASSEMBLY AND ASSOCIATED PARTS

Note: A field retrofit program has been initiated to replace the connectors (Item 4, Fig. 11) on the arm sensor assemblies and the mating connectors on the wiring harness with KS-19088, L30, and KS-19087, L45, respectively. (See Fig. 12.) Spare sensor assemblies will be equipped with the KS-19088, L30, connectors. If recorders have not been modified, a KS-19087, L45, connector should be ordered with each sensor assembly and replace the existing harness connector with terminations as ⧫depicited in Table D.⧫

3.12 ***Tape Position Sensor Assembly:*** To replace either sensor assembly, proceed as follows:

(1) Before removing recorder power, place the recorder in the magnetic tape unload condition. Remove any tape reels from the transport.

(2) Disconnect J3 or J7 connector from the sensor assembly, and arrange the connector out of the working area.

(3) Using the 3-inch C screwdriver, remove the two sensor assembly mounting screws and washers (Fig. 11 or 12).

(4) Carefully remove the assembly without damaging the mask (thin aluminum light shield) on the reel motor control mechanism cam assembly (Fig. 13).

(5) Mount the replacement sensor assembly in reverse order of removal.

⧫TABLE D⧫

LOWER AND UPPER WIRING ARRANGEMENT

CONNECTOR J7 LOWER SENSOR		CONNECTOR J3 UPPER SENSOR	
WIRE	KS-19087, L45 PIN NUMBER	WIRE	KS-19087, L45 PIN NUMBER
W-Y	1	W*	5
W-BR-R	6	W-R	9
G	2	W*	8
W-BK	8	G	2
W	9	W-BK	6
W-BR	5	W-Y	1

* Two white wires. The white wire on pin 8 is part of a shielded pair, the mate being the W-R wire to pin 9.

3.13 ***Tape Position Sensor Lamp:*** To replace the GE 381 tape position sensor lamp, proceed as follows:

(1) With recorder power removed, loosen the screw associated with the L-502522 terminal lug (Fig. 11 or 12) using the KS-2631 screwdriver.

(2) Gently move the terminal lug out of the way until the base of the lamp is exposed.

(3) Carefully remove the faulty lamp from the L-502521 lug.

Note: If the lamp does not come out by gentle finger pressure, loosen the screw that secures the L-502521 terminal lug (Fig. 11 or 12). Then carefully remove the lamp from the guide support hole. (Removal of the screws holding both terminals should be avoided since the light diffuser is then allowed to fall off.)

(4) Install the replacement lamp in reverse order of removal, taking care not to overtorque the screws.

(5) With recorder power applied, check and make sure that the replacement lamp is illuminated. Also check that the terminal lugs are correctly positioned and snugly secured by the associated mounting screw.

REEL MOTOR CONTROL MECHANISM AND TAPE TENSION ARM ASSEMBLY WITH ASSOCIATED SERVO COMPONENTS

3.14 ***Reel Motor Control Mechanism:*** To replace the reel motor control mechanism or the L-502624 roller, proceed as follows:

Note: If only the L-502624 roller is to be replaced, removal of the sensor assembly is not required. Omit steps in paragraph 3.12 associated with sensor removal.

(1) Remove the sensor assembly in accordance with paragraph 3.12.

(2) Carefully remove the arms from the unload position, and bring them to a gentle stop against the opposite bumper (tape break position). Do not hold the arms by the tape guides during this operation.

(3) Remove the extension spring that interconnects the upper and lower mechanisms.

(4) Remove the spring holder and roller from the cam assembly.

(5) If only the roller is to be replaced, proceed as follows:

(a) Using the KS-6854 screwdriver, remove the outer 5133-12 retaining ring (Fig. 13, Item 11).

(b) Replace the L-502624 roller, and use the E-0120 applicator to reinstall the retaining ring.

(c) Reassemble the spring holder and extension spring in reverse order of removal.

(6) Use the R-2959 hex socket screw wrench to loosen the setscrew in the hub of the cam assembly.

Note: Removal of the spring pin in the hub is not required to remove the cam assembly.

(7) Move the fork out of the way by removing the solenoid stop (Fig. 13, Item 22) using the 4-inch E screwdriver. Then pivot the fork until the fork clears the cam.

(8) Gently pull outward on the cam assembly until the assembly slips off the tension arm shaft.

(9) Carefully install the replacement cam assembly onto the tension arm shaft but do not handle the assembly in the area of the mask (thin aluminum light shield).

(10) See Fig. 13 for cam assembly orientation. Then lightly press inward until the spring pin located in the hub fits into the slot in the end of the shaft.

(11) When the cam assembly is properly oriented, tighten the setscrew in the hub.

(12) Reassemble the solenoid stop, spring, and sensor in reverse order of removal.

3.15 ***Tape Tension Arm Assembly:*** To replace either arm assembly, proceed as follows:

(1) Remove the sensor assembly and reel motor control mechanism in accordance with paragraph 3.12 and 3.14, respectively.

(2) Using the KS-6854 screwdriver, remove the 5133-25 retaining ring (Fig. 13, Item 15).

(3) Remove the two bearing spacers and spring washer from the arm assembly shaft.

(4) Slide the arm assembly free from the transport casting.

(5) Using the modified 417A tool (3/8-inch end), remove the two L-502580 arm tape guide assemblies.

Note: The tape guide shaft under tape guide rollers of the arm tape guide assemblies is about 0.101 inch high and cannot accept a typical 3/8-inch wrench because of wrench thickness.

(6) Mount the tape guide assemblies on the replacement arm assembly.

(7) Install the replacement arm assembly in reverse order of removal (Fig. 13), and use the E-0250 applicator to install the 5133-25 retaining ring.

3.16 ***Tension Arm Ball Bearing:*** To replace the tension arm ball bearings, the replacement of the L-502619 bearing plate equipped with the ball bearings is required. Proceed as follows:

(1) Remove the tape tension arm assembly in accordance with paragraph 3.15.

(2) Using the 4-inch C screwdriver, remove the three screws and washers that secure the bearing plate (Fig. 13, Item 19) to the transport casting door.

(3) Remove the bearing plate.

(4) Install the replacement bearing plate (equipped with ball bearings) in reverse order of removal.

3.17 ***Heat Sink Assembly (L-502550):*** To replace the A4 upper L-502550 or A5 lower L-502550 heat sink assembly, proceed as follows:

(1) Using the 4-inch C screwdriver, disconnect the leads from the top screws of the terminals on TB2 or the bottom screws of the terminals on TB8 mounted on the heat sink assembly.

(2) Using the 4-inch C screwdriver, remove the four heat sink mounting screws and associated washers.

(3) Apply a uniform coat of C-2471 compound to the mounting surface of the replacement assembly using the R-1021 brush.

(4) Mount the replacement assembly in reverse order of removal, and see Fig. 15 for lead color and terminal number assignment.

SWITCHES, SWITCH ASSEMBLIES, SWITCH LAMP, AND SOLENOIDS

3.18 ***Door Interlock Switch S1:*** To replace the door interlock switch, proceed as follows:

(1) Using the 4-inch C screwdriver, remove the five leads from the left side of TB11.

(2) Using the 4-inch C screwdriver, remove the two switch bracket mounting screws and washers.

(3) Remove the switch assembly.

(4) Mount the replacement switch assembly in reverse order of removal, and see Fig. 15 for lead color code and terminal number assignment.

(5) Adjust the switch assembly in accordance with Section 034-369-701 as required.

3.19 ***Brake Release Switch S16:*** To replace the brake release switch, proceed as follows:

(1) From the front of the transport, firmly grasp the switchbutton cap and gently pull outward until the button cap is removed.

(2) Using the 3-inch C screwdriver, loosen the two screws exposed by the removal of the switchbutton cap until the catch can be seen to move out from behind the casting.

(3) Disconnect the three leads from the top side of TB4.

(4) Remove the switch from the transport by gently pulling outward.

(5) Mount the replacement switch in reverse order or removal, and see Fig. 15 for lead color code and terminal number assignment.

3.20 ***Pushbutton Switch Lamp:*** To replace the GE 387 lamp(s) in any pushbutton switch (or indicator), proceed as follows:

(1) Grasp the switch indicator light firmly, and pull outward until the stop is reached. (The indicator will not move any further.)

(2) Rotate the indicator clockwise or counter-clockwise 90 degrees so that the lamp releases from the switch-lamp holder.

(3) Replace the faulty lamp.

(4) Reinstall the indicator light in reverse order of removal.

3.21 ***Switch Assembly, L-502568 (A12), and L-502570 (A13):*** To replace either the L-502568 (A12) switch assembly or the L-502570 (A13) switch assembly (Fig. 2), proceed as follows:

(1) Disconnect connector J1 for switch assembly A12 or connector P2 for switch assembly A13.

(2) Using the KS-2631 screwdriver, remove the four switch assembly plate mounting screws and washers.

(3) Remove the switch assembly.

(4) Mount the replacement switch assembly in reverse order of removal.

3.22 ***Power Switch Assembly (CP15):*** To replace the power switch assembly, proceed as follows:

(1) Disconnect P15 connector from CP15 (Fig. 6).

(2) Using the 4-inch C screwdriver, remove the three circuit pack mounting screws and associated washers located beneath CP15.

(3) Using the 4-inch C screwdriver, disconnect the outside leads from TB9.

(4) Apply a uniform coat of C-2471 compound to the mounting surface of the replacement switch assembly using the R-1021 brush.

(5) Mount the replacement CP15 in reverse order of removal, and see Fig. 15 for lead color code and terminal number assignment.

3.23 ***Relay Assembly:*** To replace the relay assembly, proceed as follows:

(1) Using the 4-inch C screwdriver, disconnect the relay assembly leads from terminals 1, 4, 5, and 7 of TB1, and the leads from the terminals of TB10 on the relay assembly.

(2) Using the 4-inch C screwdriver, remove the two relay bracket mounting screws and washers that holds the bracket to the transport casting.

(3) Mount the replacement relay assembly in reverse order of removal, and see Fig. 15 for lead color code and terminal number assignment.

3.24 ***Solenoids (L1 and L4):*** To replace either L1 or L4 solenoid, proceed as follows:

(1) Using the KS-6854 screwdriver, remove the L-502621 screw (Fig. 13, Item 14) that connects the solenoid plunger to the cam fork.

(2) Using the 4-inch C screwdriver, disconnect the switch leads from TB1 or TB6.

(3) Using the 4-inch C screwdriver, disconnect the two black solenoid power leads from TB1 or TB6.

(4) Using the 4-inch C screwdriver, remove the two solenoid bracket mounting screws and washers that secure the bracket to the transport casting.

(5) Remove the solenoid assembly.

(6) Remove the mounting bracket from the faulty solenoid, and mount on the replacement solenoid.

(7) Mount the replacement solenoid in reverse order of removal, and see Fig. 15 for lead color code and terminal number assignment.

MISCELLANEOUS

3.25 To replace tape guide and arm tape guide assemblies, proceed as follows:

(a) ***Tape Guide Assemblies:*** Use the modified 417A wrench to remove and install replacement assemblies (Fig. 2).

(b) ***Arm Tape Guide Assemblies:*** Use the modified 417A wrench to remove and install replacement assemblies.

Note: The 417A wrench is 0.125 inch thick. The 3/8-inch end must be modified so that the thickness is reduced to about 0.098 inch. The height of the tape guide shaft for the wrench to fit is 0.101 inch high.

3.26 ***Tape Tension Arm Bumper:*** To replace an arm bumper, proceed as follows:

(1) Place the recorder in the unload state, and remove any tape reel from the transport.

(2) If the supply reel arm bumper is to be replaced, use KS-2423 twill cloth to cover and protect all the tape guide assemblies from rubber and adhesive residue.

(3) Pry off the old bumper using a knife, and trim away all chunks of rubber and adhesive.

(4) Lightly scrape the bumper mounting surface with the knife blade to remove the last traces of old rubber and adhesive.

(5) Wipe the mounting surface with a KS-2423 twill cloth moistened with Toluene (ASTM D362) solvent. Wipe the surface dry with a KS-2423 twill cloth.

(6) Apply adhesive (X 17049 L1—same as 3M Company EC-870) to the bumper mounting surface and the bottom of the rubber bumper.

Note: The adhesive should be evenly spread about 0.005 inch thick.

(7) Allow both surfaces to dry. A second coat on the rubber bumper is recommended if the initial coat dries with porous appearance. Allow the second coat to dry.

(8) Moisten a KS-2423 twill cloth with Toluene, and lightly wipe the adhesive coated surface of the rubber bumper.

(9) Carefully align the bumper against the transport mounting surface, and apply pressure to assure intimate bond line contact.

Note: The recorder may be used immediately, but full bond strength will not be realized for about 16 hours.

(10) Carefully vacuum the scrapings from the recorder components using the KS-14377, L5, vacuum cleaner.

3.27 ***Heat Sink Assembly (L-502679):*** To replace the card cage mounted heat sink assembly (A2 or A3), proceed as follows:

(1) Using the 4-inch C screwdriver, disconnect TB7 connected leads as follows:

(a) Upper assembly (A2)—terminals 1 through 5

(b) Lower assembly (A3)—terminals 8 through 12.

(2) Using the 4-inch C screwdriver, remove the four assembly mounting screws and associated washers.

(3) Mount the replacement assembly in reverse order of removal, and see Fig. 15 for lead color code and terminal number assignment.

3.28 ***Write Enable Assembly:*** To replace the write enable assembly, proceed as follows:

(1) With recorder power removed, disconnect the four leads from the write enable assembly terminal board (TB3) using the 4-inch C screwdriver.

(2) Remove the two write enable assembly mounting screws and washers using the 4-inch C screwdriver.

(3) Install the replacement assembly in reverse order of removal. See Fig. 15 (terminal board wiring color codes) to reconnect the leads to TB3.

3.29 ***Power Resistor (R2 and R5):*** To replace either power resistor, proceed as follows:

(1) With recorder power removed, disconnect the two resistor leads from TB2-1 and TB2-2 (upper) or TB8-1 and TB8-2 (lower) using the 4-inch C screwdriver.

(2) Using the 33 tool, remove the 11/32-inch nut and washer from the resistor mounting stud.

(3) Remove the centering washer and the mica washer (Fig. 6).

(4) Remove the resistor from the mounting stud.

(5) Install the replacement resistor in reverse order of removal. See Fig. 15 (terminal board wiring color codes) to reconnect the leads to the terminal board.

3.30 ***Transport Removal From Recorder:*** To remove the transport from the recorder housing, proceed as follows:

(1) Remove any tape reels from the transport, and place both tape tension arms in the tape-break position.

(2) From the power supply compartment, disconnect P14 from the power supply. Then remove the cable clamps with associated screws and washers that secure the power cable assembly to the power supply.

(3) From the inside of the rear housing, use the 3-inch C screwdriver to remove the seven cable clamps, screws, and washers associated with the four cable assemblies. Disconnect the ground strap.

(4) From the back side of the rear housing, use the 3-inch C screwdriver to remove the two connector mounting screws and washers from each of the four connectors.

(5) Guide each connector back through the associated mounting hole by moving the connector outward (with cable) enough so that the connector may be rotated and guided back through the mounting hole.

(6) Open the transport casting to approximately 45 degrees.

(7) Grasp the transport casting firmly, and lift upward until the transport hinge clears the hinge studs. Note the friction washers on the hinge studs, and make sure that they did not stick to the bottom of the transport hinges.

(8) Mount the transport casting in reverse order of dismounting.

(9) Lubricate the hinges in accordance with Section 034-369-701.